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THE RISE OF A CASUALTY CLEARING STATION.

By Archie L. McLean, M.B., B.A. (Sydney),

Recently Captain, Royal Army Medical Corps.

We lived on historic ground; the great headquarters of the British Army in the field; the chamber of diagnosis, still and undisturbed, where the Commander-in-Chief stooped to feel the pulse of that mighty body—the soldiers manning the tangle of chaotic trenches, the colonels of regiments, the staffs of brigades, the directors of divisions, the strategists of army corps and the tacticians of armies! "Clearing station" was only a name; we were a hospital for the reception of the sick of divisions brought back from the firing-line to recuperate. If they were not fit after we had cared for them for three weeks, they were evacuated down the line, in the phrase of these days.

There was an atmosphere within the quadrangle of the *Lycée* which accommodated our war-worn patients. On three sides the walls of this French secondary school—a child of the mother University of Lille—rose to meet the sky. In the young spring, before the war, the playground was a vortex of children happy in the eager abandonment of their quaint games. Now a few boys, many of them orphans, were crowded into a courtyard, over which towered an ancient chapel profaned to the use of a military garage. The old playground, shaded by a green canopy of elms and plane trees, was invaded by large marquee tents, where patients with scabies, venereal cases and contacts for isolation were kept till arrangements for their disposal could be made. Across the quadrangle walked smart men in khaki, wearing the brassard of the universal Red Cross, and the symbols of authority—officers replete with cane and polished leggings. Closing in the open side of the spacious yard was a walled enclosure—the garden of Sir John French's house.

One night the meaning of the distant guns, booming ceaselessly for long months, was unmasked. A daring German pilot swooped down and dropped seven bombs. Several fell in the garden and round the quadrangle, one just missed the ancient chiming clock of the *Lycée*, and one grazed the side of the surgical ward, exploding harmlessly in the ground. And so it became apparent that we were at war with a resourceful enemy.

The times had changed. We were becoming weary of the winter, of the long months pent up in a civilized town. The list of complaints was always on this wise; appendicitis, acute or sub-acute rheumatism in its manifold forms, "rheumatic fibrositis" of the Royal Army Medical Corps, inflammation of the connective tissue ("I.C.T." of the Royal Army Medical Corps), trench feet, trench nephritis and trench fever of the unmistakable kind, pyrexia of unknown origin ("P.U.O."), paratyphoid and enteric fever (to be diagnosed at the Base), scabies and impetigo, flat feet and hallux valgus, tonsillitis, pneumonia and influenza; and the list was inclusive of a host of minor maladies. But never a real wounded man, weltering in trench mud, straight from the firing-line. The lines of evacuation swept by and left us isolated; while we chafed because we had become a stationary hospital.

There was a dispensary at our disposal, large, airy dormitories as wards, a well-equipped operating theatre, and a very few interesting cases; men soon to return to their regiments or to be evacuated when they were fit for travelling. During the winter of 1915-1916 they trickled in slowly from the divisions in rest, until the Headquarters moved, and our town fell behind the front into the spiritless lines of communication.

But all were hopeful of the days ahead and the "big push" of 1916. So we waited until the order came to move up-country, and, when it arrived, the Casualty Clearing Station entrained as a unit of a hundred men with tents and equipment complete and two hundred stretchers. A couple of motor lorries, each with a carrying capacity of two tons, went off in advance to the south to find a grassy field, marked on a squared map, five miles from where the Somme offensive was to commence six weeks later.

It was a red-letter day. The lorries had disgorged a pile of bell-tents and marquees, and the Unit, after a circuitous tour through Northern France, was having its first taste of the "real thing"; laying out a camp that was to be a hospital for their comrades fighting a few miles away. The lorries went rumbling off to a rail-head, where a mountainous heap of hospital requisites had been decanted from several railway trucks. And they journeyed to and fro for days, pausing only to go off at a tangent for several large hutments left by the French when the British took over the line south of Artois. Those lorries kept the men of the Unit busy continuously; unloading, stacking, building, digging and re-constructing.

It was in a delightful situation, this field, falling away in a gentle slope from the main Arras road, dominating a fine panorama of forest, field and farm towards the mysterious front. The countryside was vivid green: the wheat and barley waved and shimmered in the summer sunlight: cows and horses grazed peacefully on the swards of the undulating downs over which blighting war had swept in the autumn of 1914. Shell-holes in the fields were downy with rich grass; the woodlands shattered by shrapnel were draped with the greenery of another year; the deserted farms had been re-peopled by a race who carry their tragedy sturdily and with matchless bravado. And skylarks sang in the azure heights of the sky, even while British airmen sailed away

to the east on their bold reconnaissance, or came home with a strident hum of defiance, followed by a trail of bursting shells, even while massive howitzers belched their long-range projectiles from every sheltering close, and the lofty balloons hung behind the front watching, ever watching the ruthless enemy.

But there was little time for sentiment; there was work to be done. A great encampment was to be laid out in a few weeks. Army orders had changed our plans. We were to be a modern hospital, with a theatre and four operating tables, capable of accommodating six hundred lying patients. More tents were requisitioned, more French huts were appropriated, one hundred beds and several hundred stretchers were added to the establishment. There were to be twelve surgeons at work, and ten nursing sisters in a neighbouring town were ready to join the hospital as soon as it was ready.

The Unit worked feverishly, pitching the marquees in long lines and lacing them together to form wards one hundred and twenty feet in length; huge hutments rose in skeleton, and filled out under the able direction of a party of engineers; there were men digging soakage pits and urine pits on an extensive scale; latrines, cook-houses and sterilizing rooms had to be planned to meet an exacting future; an artesian well was discovered in a neighbouring *château*, and from it water was to be pumped to tanks raised on a high platform, supplying the Clearing Station by a pipe-line—the scheme and work of the engineers; electricians arrived to instal their huts, gas-engines and dynamos, in order to supply with light the growing township of canvas and wood; all the time a new road was being cut to connect the nearest track from the front with the hospital and the main Arras road; then, too, the siding for a hospital train was to come off a railway line which curved past our six-acre paddock; and timber of all kinds, stoves, galvanized iron, bricks, waterproof paper, coal, tools and what-not were to come from engineering depôts, parks and sub-parks in which are amassed the stores and munitions of war. Another clearing station was to share our casualties, and their headquarters were to occupy the adjoining *château*. Altogether there was work sufficient for weeks ahead of us; so that it was only when the last pieces of wooden flooring had been put down in the tent-wards and hutments, and our beds and stretchers stood in long, waiting lines, that we had leisure to think of the surgical dispositions we were to make.

Colonel Sir Anthony Bowlby, Surgical Consultant and Adviser to British Clearing Stations, did much for us by his timely suggestions and unfailing enthusiasm. He approved of our sixty-foot operating hut and of a stretcher operating table designed by Captain J. Anderson, the surgical specialist. The operating hut was the main scene of work for the medical officers during the week before the first of the wounded were received. Shell dressings, bandages, rolls of wool and gauze, instruments and splints were speedily requisitioned from an advanced medical store to fill the shelves nailed up by our amateur carpenters. "Primus" stoves roared under the steam sterilizers preparing dressings, even at the same moment as the amateur painters were daubing the last square foot of whitewash on to the inner lining of the operating hut. Sisters and orderlies were in the wards, busied with the details of blankets and pillows and the multifarious equipment of a hospital in the field. There was haste everywhere, for an Army Order had enjoined "No. 20 C.C.S." to be ready to receive wounded on and after June 15.

A ward in "Canvas Town"! Five spacious Indian marquees, sewn together end to end, made a fine vista when the smooth tongued-and-grooved boards were laid down by the carpenters, when the orderlies set out the stretchers with neat, grey, Army blankets in two long rows, twenty-five on either side, and when the sisters had packed their tables with dressings and solutions, instruments and trays. A very pleasant vista, too, for the inner canvas was coloured to a warm yellow tint and the cheerful sunlight slanted through the many doorways between walls braced with bamboo uprights! Somewhat airy and cool at night! But there were plenty of blankets, and a large stock of hot-water bottles were to come from the nearest British Red Cross depôt. This depôt was a boon; it supplied us with bed-rests, lockers, bed-pans and urine bottles, hanging lamps, and many indispensable comforts, notably for the Officers' Ward.

The operating hut. A great, gaunt, whitewashed structure, rejoicing in an abundance of room, plenty of light and, if necessary, a good circulation of air. Most important of all, there was room for four surgeons and assistants to work, room for trolleys to run unimpeded backwards and forwards, and room for sisters and orderlies to sterilize and prepare for operations in comfort. There were four operating tables, one home-made—a stretcher on a wooden trestle, and three of the regulation tubular brand. The stoves and sterilizing gear stood on a thick sheet of iron nailed down in one corner, and the other end of the hut gave access to a small room full of motley heaps, in which Thomas's splints for legs and arms were certainly in the preponderance. Overhead hung two sets of lights, acetylene and electric, so that in case of accident to one set the other would always be available. A large, glass saline irrigator and a douche-can with tubing attached were suspended above two of the tables. In appearance, a very primitive operating room, but adequate and efficient, and eminently suited for much of the primitive surgery of a casualty clearing station.

The visitor to our hospital in the field turns off the Arras road, along which roll *camions* of ammunition and battalion transport, shrouded in a haze of white dust, down a newly-cut track, flattened out by a steam-roller, until his car halts at a rough-hewn, rustic bridge spanning a ditch and leading to a field. Here he is confronted by a flag-pole flying the Union Jack and the Red Cross, and, on either hand, an imposing array of tents, spreading their long eaves, stretched taut by mathematical lines of ropes secured to whitewashed pegs. He walks across the

bridge, past the khaki-clad policemen on duty, over a stamped surface of brick rubble in chips into a neat fairway between the wards. On his right he has read "Orderly Room" affixed to a collection of Armstrong huts; on his left, "Reception Room," denoting a row of marquees; and then to right and left, "No. 1 Ward (Officers)," "No. 2 Ward," "No. 3 Ward," and so on, until at "No. 6 Ward" the stony fairway opens out into a generous square of grass bounded by a tent-dispensary, a quartermaster's canvas store, a galvanized iron field-kitchen and a wooden operating hut. Here he is in the centre of the hospital!

Through an opening to the right he can see another long, French hutment and a row of European pattern tents for the reception of walking wounded, and the Armstrong hut-compound, screened by sacking, belonging to the nursing sisters. Across an open space of paddock, behind the cook-house, he descries bell-tents ranged together and the marquee mess-tent of the officers, and, pushed back in a secluded corner, the Horsfall destructors, the laundry, the power-house and the latrines. To his left, behind the operating hut, stands the mortuary, further away two more rows of European pattern tents, and, thrust back along the upper boundary of the field, the bell-tents of the men of the Unit. All this, in a short walk, he may comprehend in a passing *coup d'oeil*—the product of four weeks' work!

The hospital now presented a variegated appearance. From the point of view of enemy aircraft it had become a rather prominent and suspicious landmark which had sprung up within a short time on an open field a few miles inside the British trenches. It is true that the visibility of the tents had been reduced by a landscape pattern, painted in streaks and blotches all over them, but the dark roofs of the huts showed them up by contrast; then, too, there was often smoke rising from the field-kitchens and from the chimneys of the two Horsfall destructors which consumed all the refuse.

Accordingly, on the advice of the officers of a neighbouring aerodrome, we painted conspicuous red crosses on the roofs of the larger huts. This precaution doubtless saved us from a bombardment during two air raids which occurred on June 17 and June 25, 1916. On the latter date a large fleet of German battle-planes, flying at some 12,000 feet, made an extensive raid for ten miles behind the front line. An entrenching battalion, officered by engineers, were busy at work putting the last touches to the railway siding and platform for loading the wounded, both of which now ran along the lower boundary of our field. Seven bombs were dropped close to the working party, and five men who took refuge in a field of standing wheat were wounded. The preliminary cannonade of the Battle of the Somme was now in deafening progress, but it was on June 15 that the nearest field ambulance had sent to us the first wounded soldier on a stretcher.

ON THE MILK-CURDLING PROPERTIES OF PANCREATIC JUICE.[1]

By **Henry George Chapman, M.D. (Melb.), and Arthur Henry Moseley,[2] M.B., ChM. (Sydney).**

(From the Physiological Laboratory of the University of Sydney).

Historical and Scope of Inquiry.

Kuhne[1] is stated to have been the first to note that extracts of the pancreas of the dog caused milk to clot. Roberts[2] observed that extracts of the pancreas of the pig, the ox and the sheep produced a more or less pronounced phase of curdling when they were added to milk. Harris and Gow[3] and Edkins[4] confirmed and extended these observations on the action of extracts of the pancreas. Halliburton and Brodie[5] examined the action of pancreatic juice on milk. With one sample of juice (from a puppy) a clot, resembling that formed with gastric rennin, was obtained, but with the remaining samples no clot was produced. A different phenomenon in which the milk became viscid upon cooling, after contact with the juice for some minutes, was however noted.

We have investigated the action of the pancreatic juice of the dog on cow's milk. A repetition of certain experiments seemed called for in the light of the recent work on the ferments of the pancreas and on the nature of gastric rennin. In 1913, J. Mellanby and V. J. Woolley[6] published a paper dealing with certain of the problems studied by us.

Methods.

The pancreatic juice was collected into beakers through a sterilized canula inserted into the larger pancreatic duct of a dog. A flow of juice was stimulated by the introduction of 0.4% HCl into the jejunum, or by repeated injections of secretin into the jugular vein, or more frequently by the combination of the two proceedings. The dogs were of various breeds and of different weights (5 to 40 kilos). Some were only half grown. In every case the dog received 0.1 gm. morphine acetate for each 5 kilos. body weight, and was deeply anæsthetized with ether. Samples of juice from fourteen dogs were tested. Enterokinase was prepared both by the methods of Bayliss and Starling[7] and of Vernon.[8]

Cow's milk was obtained as fresh as possible. It was titrated again N/10 NaOH with phenolphthalein as indicator.[9] The number of c.cm. of N/10 NaOH required to turn 1 c.cm. phenolphthalein just pink in 100 c.cm. milk is called the number of degrees of acidity.[10] The milk employed varied from 12° to 20° of acidity.

All measurements were made from burettes in order to observe strict quantitative conditions. The volume of fluid in each tube was adjusted to a constant figure for each set of experiments. Water-baths were arranged to keep a constant temperature of 38° C. The test tubes were examined at definite intervals of time to determine clotting. The time at which the tube could be inverted without dis-

[1] Read at a meeting of the Royal Society of New South Wales on December 6, 1916.

[2] Much of the experimental work for this paper was completed in 1906, when Dr. Moseley was Junior Demonstrator. One of us (H.G.C.) is responsible for the text, as Dr. Moseley left Sydney before the completion of the research.

turbance of the contents was considered as the time of clotting. As frequent movement of the tube tended to prevent the formation of a firm clot when the time of coagulation was prolonged, those experiments in which solid clots did not form were not recorded, and the series was at once repeated.

Results with Pancreatic Juice.

Experiments to determine the action of the pure pancreatic juice on cow's milk were made by adding various quantities of each pancreatic juice to 5 c.cm. or more of milk. Some 220 tests were carried out, certain of which are recorded in Table 1.

Table 1.

Tube.	Milk. c.cm.	Pancreatic Juice. c.cm.	Water. c.cm.	Result.
1	5	0.03	1.37	No clotting
2	5	0.06	1.34	No clotting
3	5	0.1	1.3	No clotting
4	5	0.5	0.9	No clotting
5	5	1.0	0.4	No clotting
6	5	1.4	—	No clotting

In this series increasing portions of pancreatic juice were added to 5 c.cm. milk. The tubes were observed for 16 hours. No coagulation was observed in any experiment. The milk showed no visible change though its properties altered in a material manner, as will be discussed later. In some other series the tubes were kept under observation for 24 hours. The initial acidity of the different milks varied from 12° to 18° acidity. The acidity steadily rose proportionately to the quantity of juice and the time of contact. In some series fresh juice, in others juice that had stood varying periods up to 24 hours was employed. No preservative was added to the juice, which was kept under sterile conditions. The pancreatic juice from each of the 14 dogs failed to produce clotting when added to milk.

Zilwa[11] has noted the alkaline character of pancreatic juice, and one of us (H.G.C.[12]) has found the alkalinity of dog's pancreatic juice to be equivalent to N/7 5 NaOH on the average. It has been further observed by Maly,[13] Lorcher,[14] Hammerston,[15] Ringer,[16] Langley[17] and Boas[18] that small quantities of free caustic soda rapidly destroy rennin. The active destruction of gastric rennin has been studied by us.[19] We have found that quantities of alkali, insufficient to render milk akaline to phenolphthalein, prevent the formation of the clot with gastric rennin. Experiments with pancreatic juice were made in which the milk was mixed with known amounts of N/10 HCl. One such series is recorded in Table 2. The initial acidity of the milk was 17.6%, so that 5 c.cm. milk

Table 2.

Tube.	Milk. c.cm.	N/10 HCl c.cm.	Water. c.cm.	Pancreatic Juice. c.cm.	Results.
1	5	0.1	1.4	0.3	No clotting
2	5	0.3	1.2	0.3	No clotting
3	5	0.5	1.0	0.3	No clotting

required 0.88 c.cm. N/10 NaOH to turn phenolphthalein red. The amount of alkali in the 0.3 c.cm. pancreatic juice was thus not enough to make the milk alkaline, so that the alkalinity of the juice was partially or completely neutralized by the hydrochloric acid. As the quantity of hydrochloric acid added to the milk was increased, it was found to precipitate the caseinogen. On that account we have been unable to keep pancreatic juice in contact with more than 0.5 c.cm. N/10 HCl to each 5 c.cm. milk, when the quantity of pancreatic juice was 0.3 c.cm. or less. The addition of hydrochloric acid was without action in assisting clotting. The addition of acid seems not to be of importance, since a strong acid reaction developes in the milk due to the lipase.

Calcium salts are known to play an important part in the coagulation of milk by gastric rennin. They have also been assigned an activating power on the trypsinogen of pancreatic juice. A series of experiments were instituted to observe the action of calcium salts and pancreatic juice on clotting. In some series hydrochloric acid was also added. A number of experiments are recorded in Table 3.

Table 3.

Tube.	Milk. c.cm.	Pancreatic Juice. c.cm.	N/5 $CaCl_2$. c.cm.	N/10 HCl. c.cm.	Water. c.cm.	Results.
1	5	0.1	0.5	—	1.3	No clot.
2	5	0.3	0.5	—	1.1	No clot.
3	5	0.5	0.5	—	0.9	No clot.
4	5	1.4	0.5	—	—	No clot.
5	5	0.3	0.5	0.1	1.0	No clot.
6	5	0.3	0.5	0.3	0.8	No clot.
7	5	0.3	0.5	0.5	0.6	No clot.

In no experiment was any clotting observed. No different results were noted with other samples of pancreatic juice, with less quantities of calcium chloride, or when the lime salt was added to a mixture of milk and juice that had stood in contact for some hours at 38° C.

Results with Activated Pancreatic Juice.

Since inactive pancreatic juice produced no coagulation of milk, the effect of activated juice was tested. Fifty-four tests were performed with samples of pancreatic juice from 11 dogs. A series of experiments is recorded in Table 4.

Table 4.

Tube.	Milk. c.cm.	Activated Pancreatic Juice. c.cm.	Result.
1	5	0.03	No clotting
2	5	0.1	No clotting
3	5	0.2	No clotting
4	5	0.3	No clotting

The activated juice for this series was prepared by adding 0.1 c.cm. enterokinase to 5 c.cm. pancreatic juice. This was stood 16 hours in the incubator at 37° C. The activation was such that a mixture of 5 c.cm. 2% potassium arsenite and 0.3 c.cm. activated juice digested 6 mm. egg-white in two Mett's tubes in six hours. As the Table shows, no clotting occurred. The milk rapidly altered in appearance, and smelt strongly of fatty acids. If a tube was removed from the water-bath, the milk became viscid on cooling, though no clot was produced. Upon reheating the milk, the viscosity disappeared. Other samples of pancreatic juice were activated with greater or less quantities of enterokinase, and the time of incubation was reduced in some series to two hours. In other series the milk was acidified with various amounts of N/10 HCl and then tested with activated juice. In none of

these cases was coagulation observed. If, however, N/5 $CaCl_2$ was added to the milk with the activated juice clotting rapidly appeared. Thus, 5 c.cm. milk, 1 c.cm. N/5 $CaCl_2$ and 0.3 c.cm. activated juice yielded a firm clot in two minutes. Clotting could also be produced by the addition of activated juice to mixtures of milk and inactive pancreatic juice which had stood in contact for some time. A typical experiment is recorded in Table 5. A series of 12 tubes were arranged, each containing 5 c.cm. milk and 0.1 c.cm. inactive pancreatic juice. The tubes in the water-bath at 37° C., and; at various intervals of time, 0.1 c.cm. activated juice was added to each tube. The activated juice did not bring about clotting until the milk and inactive (canula) pancreatic juice had been in contact 55 minutes previous to the addition of the activated juice. In the series as carried out an addiment of active juice was made to a tube each 5 minutes. In the Table many tubes are omitted.

Table 5.

Tube.	Milk. c.cm.	Inactive Pancreatic Juice. c.cm.	Period in Contact. Min.	Active Juice. c.cm.	Result.
1	5	0.1	5	0.1	No clot.
2	5	0.1	10	0.1	No clot.
3	5	0.1	30	0.1	No clot.
4	5	0.1	50	0.1	No clot.
5	5	0.1	55	0.1	Clot in 17 min.
6	5	0.1	65	0.1	Clot in 9 min.
7	5	0.1	75	0.1	Clot in 5 min.
8	5	0.1	85	0.1	Clot in 3 min.
9	5	0.1	100	0.1	Clot in 2 min.
10	5	0.1	110	0.1	Clot in 1¾ min.
11	5	0.1	167	0.1	Clot in 1¾ min.
12	5	0.1	350	0.1	Clot in 77 sec.

It will be seen that the time of clotting steadily diminished to less than 2 minutes. Similar series, with concordant results, were obtained with each of 5 pancreatic juices that had been activated. When the milk and inactive juice, which had been in contact for a sufficient time to produce clotting on the addition of activated juice, had been heated to 70° C. for 30 minutes or more, the addition of activated juice no longer gave rise to clotting.

Results with Inactive Pancreatic Juice and Enterokinase.

Many experiments were carried out with pancreatic juice, enterokinase and milk. These may be arranged in two groups, (*a*) in which enterokinase was added to milk that had been in contact with pancreatic juice for many minutes, and (*b*) in which the enterokinase was added to milk either before or at the same time as the pancreatic juice. A series from the first group is recorded in Table 6. The milk and pancreatic juice were in contact 115 minutes at 38° C. before 0.03 c.cm. enterokinase (prepared according to Bayliss and Starling[7]) was added. It will be noted that the addition of enterokinase caused the formation of a clot in a few minutes. This clot behaved as a true rennet clot, in that it shrank and squeezed out whey. Proteolysis set in after about 30 minutes and the clots soon digested unless the tubes were taken from the water-bath.

Table 6.

Tube.	Milk. c.cm.	Pancreatic Juice. c.cm.	Enterokinase. c.cm.	Result.
1	5	0.03	0.03	Clot in 23 min.
2	5	0.06	0.03	Clot in 13 min.
3	5	0.1	0.03	Clot in 12 min.
4	5	0.2	0.03	Clot in 13 min.

One hundred and twenty-one analogous tests with 14 different juices were carried out with concordant results. The time in which clotting occurred varied greatly with different juices. The shortest times of clotting were obtained with a fresh juice from the canula acting on a milk of 14.4° acidity. The series is recorded in Table 7. The juice and milk were in contact for 36 minutes at 38° C., and then increasing amounts of enterokinase were added. The milk clotted with 0.03 c.cm. enterokinase in 6 minutes, and with 0.06 to 0.33 c.cm. in 3 minutes. These times of

Table 7.

Tube.	Milk. c.cm.	Pancreatic Juice. c.cm.	Enterokinase. c.cm.	Result.
1	5	0.1	0.03	Clot in 6 min.
2	5	0.1	0.06	Clot in 3 min.
3	5	0.1	0.13	Clot in 3 min.
4	5	0.1	0.2	Clot in 3 min.
5	5	0.1	0.33	Clot in 3 min.

clotting are greater than the shortest times of clotting observed on adding activated juice to mixtures of milk and inactive juice which had been in contact for some time. Activated juice under these conditions not infrequently caused clotting in 40 to 60 seconds. It must also be noted that milk and pancreatic juice had to be in contact about 55 minutes to be clotted by activated juice, while 25 minutes' contact was sufficient if enterokinase was added. Increase in the time of contact did not greatly increase the speed of coagulation. Table 8 records an experiment showing the relationship between the time of contact of milk and pancreatic juice and the rapidity of clotting after the addition of enterokinase. In this experiment a series of tubes, each containing 5 c.cm. milk and 0.1 c.cm. pancreatic juice, was arranged at 38° C. Every two minutes 0.03 c.cm. enterokinase was added to a tube and the time of clotting, if any, noted. This experiment was continued for 100 minutes, but other experiments have been made up to 360 minutes. Many tubes are omitted from the Table.

Table 8.

Tube.	Milk. c.cm.	Pancreatic Juice. c.cm.	Time of Contact. Min.	Enterokinase. c.cm.	Result.
1	5	0.1	10	0.03	No clotting
2	5	0.1	20	0.03	No clotting
3	5	0.1	30	0.03	No clotting
4	5	0.1	36	0.03	Clot in 22 min.
5	5	0.1	40	0.03	Clot in 22 min.
6	5	0.1	50	0.03	Clot in 16 min.
7	5	0.1	80	0.03	Clot in 18 min.
8	5	0.1	100	0.03	Clot in 18 min.

The Table shows that clotting with enterokinase first occurred after 36 minutes of the juice and milk, and that, after 100 minutes, the time of coagulation with enterokinase was only four minutes less than after 36 minutes' contact.

A study of Tables 6 and 7 will show that while an increase in the amount of pancreatic juice or enterokinase diminishes the time of coagulation yet

a definite limit is reached in the time of clotting, so that further increase in the amount of pancreatic juice or enterokinase no longer shortens the time of coagulation. In Table 6 the time of coagulation reaches a minimum of 12 to 13 minutes, with the result that increase in the pancreatic juice from 0.06 c.cm. to 0.2 c.cm. was without appreciable effect. With another sample of pancreatic juice the quantity was increased to 1 c.cm. without diminishing the time of clotting below that produced with 0.3 c.cm. In Table 7 the time of coagulation reaches a minimum of 3 minutes, with the result that increase in the quantity of enterokinase from 0.06 c.cm. to 0.33 c.cm. did not appreciably diminish the time of clotting. The time that the pancreatic juice was preserved, not exceeding 48 hours, exercised little influence upon the results.

The addition of hydrochloric acid or calcium chloride, or both these substances to the milk and pancreatic juice diminished the time in which clotting occurred on the subsequent addition of enterokinase. A series of experiments is recorded in Table 9. The enterokinase was added after 180 minutes' contact.

Table 9.

Tube.	Milk.	Pancreatic Juice.	N/10 HCl.	N/5 $CaCl_2$.	Enterokinase.	Result.
	c.cm.	c.cm.	c.cm.	c.cm.	c.cm.	
1	5	0.3	—	—	0.33	Clot in 8 m.
2	5	0.3	0.1	—	0.03	Clot in 6 m.
3	5	0.3	0.3	—	0.03	Clot in 6 m.
4	5	0.3	0.5	—	0.03	Clot in 4 m.
5	5	0.3	0.1	1	0.03	Clot in 4 m.
6	5	0.3	0.3	1	0.03	Clot in 4 m.
7	5	0.3	0.5	1	0.03	Clot in 4 m.
8	5	0.3	—	1	0.03	Clot in 4 m.

The experiments in which enterokinase was added to the milk at the same time or before the pancreatic juice may now be described. When milk, pancreatic juice and enterokinase are mixed together the result is variable; either a solid clot may form or the milk may undergo a series of changes dependent on proteolysis. A clot was obtained, when the pancreatic juice had not stood more than five hours after leaving the canula, when the amount of juice was small, less than 0.35 c.cm. to 5 c.cm. milk, and when the amount of enterokinase was not greater than 0.03 c.cm. Six samples of pancreatic juice yielded concordant results. Some experiments in this category are recorded in Table 10.

Table 10.

Tube.	Milk.	Pancreatic Juice.	Enterokinase.	Result.
	c.cm.	c.cm.	c.cm.	
1	5	0.03	0.03	Clot in 47 min.
2	5	0.06	0.03	Clot in 38 min.
3	5	0.1	0.03	Clot in 31 min.
4	5	0.13	0.03	Clot in 31 min.
5	5	0.16	0.03	Clot in 31 min.

In this Table it is shown that the increase in the pancreatic juice from 0.03 c.cm. to 0.16 c.cm. diminished the time of clotting to a minimal period of 31 minutes. These clots behaved as true rennet clots, shrinking and squeezing out whey.

Larger quantities of pancreatic juice or enterokinase gave no clotting. The process of digestion advanced rapidly, and rendered coagulation impossible. This was evidenced by the addition of gastric rennin. If the milk, pancreatic juice and enterokinase had been in contact for 60 minutes the addition of rennin produced no clotting. If, however, the rennin was added after three minutes, a clot was formed which rapidly digested. Whenever the juice was over five hours old, no clot was formed, but rapid digestion occurred.

The addition of hydrochloric acid, of calcium chloride or of a mixture of these substances hastened the time of coagulation. Coagulation was also produced in the presence of these bodies with quantities of pancreatic juice and enterokinase which did not otherwise give rise to clotting. A representative set of experiments is recorded in Table 11.[1] The results show that while milk, juice and enterokinase failed to clot, the addition of 0.5 c.cm. N/10 HCl caused clotting in 9 or 10 minutes, the addition of 1 c.cm. N/5 $CaCl_2$ caused clotting in 5 minutes, and the addition of both N/10 HCl and N/5 $CaCl_2$ caused clotting in the same time.

Table 11.

Tube.	Milk.	N/10 HCl.	N/5 $CaCl_2$.	Pancreatic Juice.	Enterokinase.	Result.
	c.cm.	c.cm.	c.cm.	c.cm.	c.cm.	
1	5	—	—	0.1	0.03	No clot.
2	5	—	—	0.3	0.03	No clot.
3	5	—	—	0.5	0.03	No clot.
4	5	—	—	1.0	0.03	No clot.
5	5	0.5	—	0.1	0.03	Clot 10 m.
6	5	0.5	—	0.3	0.03	Clot 10 m.
7	5	0.5	—	0.5	0.03	Clot 9 m.
8	5	0.5	—	1	0.03	Clot 9 m.
9	5	0.5	0.5	0.1	0.03	Clot 5 m.
10	5	0.5	0.9	0.5	0.03	Clot 5 m.
11	5	1	1	0.1	0.03	Clot 5 m.
12	5	—	1	0.5	0.03	Clot 5 m.

The Action of Enterokinase Alone.

The addition of enterokinase to milk in no case led to clotting. Quantities of enterokinase varying from 0.03 c.cm. to 1 c.cm. were added to milk, and the milk observed for 16 hours. The addition of pancreatic juice at various periods after the enterokinase sometimes led to clotting, and sometimes failed to produce it. The conditions under which coagulation occurred were those detailed above when dealing with the simultaneous addition of juice and enterokinase. It must also be noted that, whenever the enterokinase was heated to 80° C. it failed to cause clotting. Thus 0.1 c.cm. juice, 1 c.cm. N/5 CaCl and 0.03 c.cm. enterokinase caused 5 c.cm. milk to clot in five minutes; when the enterokinase was previously heated no clotting appeared. Again, when mixtures of milk and pancreatic juice which clotted on the addition of enterokinase were heated for 28 minutes to 70° C. they failed to clot on the subsequent addition of enterokinase. If the period of heating was short, 3 to 6 minutes, clotting sometimes occurred on the addition of enterokinase.

(To be Continued.)

INTESTINAL DRAINAGE IN SEPTIC PERITONITIS.

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In the clinical picture of septic peritonitis two constants may be identified. These two clinical con-

[1] In this Table and also in Tables 6, 7 and 9 the water added to make the volumes of the tubes equal is omitted.

stants are: (1) intestinal paralysis, and (2) toxæmia. The toxæmia is due to absorption of a virulent toxin manufactured in the paralysed intestines as the result of acute stasis. This toxæmia is indicated by rapidly progressive general deterioration, the pulse and respiration quickly reaching a high grade of frequency, the blood-pressure falling greatly, prostration being marked, the patient showing a "dirty" pallor, becoming very restless, looking weary and anxious, and dying with sunken eyes, livid lips, and cold, clammy, tremulous extremities. Such symptoms as pain, vomiting, distension, fever may or may not be prominent features, while, instead of constipation, a toxæmic diarrhœa may be present.

In septic peritonitis there are two pathological variables: (1) inflammation of the peritoneum, and (2) fluid free in the abdomen. This is indicated by the fact that examination after death of a large series of cases reveals two fairly distinct pathological types: (1) the type with extensive obvious inflammation of the peritoneum, but little or no free fluid, and (2) the type with much free fluid, but little inflammation. Since either type presents the two clinical constants, it is obvious that the term "septic peritonitis" can only be regarded as clinical, and not as a definite pathological entity. The main rôle of the pathological variables is to produce intestinal paralysis. In the one type inflammation of the intestinal peritoneum is responsible; in the other type toxic free fluid inhibits peristalsis.

Indications.

Instead of beginning to improve 12 to 24 hours after operation on a septic focus within the abdomen, when the effects of shock and anæsthesia are usually passing off, the patient may rapidly and progressively go down hill. Thus, the patient may look unduly distressed, and the colour may not be good, perhaps assuming a "dirty" pallor, with a suspicion of some darkening of the lips; there may be drying of the tongue and great thirst, together with restlessness, anxiety, and complaint of weakness and abdominal pain, while vomiting, instead of diminishing, is becoming more urgent, and perhaps foul and regurgitant. The pulse, instead of being 100 or less, is 120 or more, and its tension is not good, while the respirations are 28, 29, or more. The abdomen may be distended, and show little movement, and neither gas nor fæces are passing, although in some cases there is actual diarrhœa.

With the suspicion of commencing septic peritonitis, every effort should be made to get the bowels to act freely, as by calomel, Epsom salts, and enemata, and by pituitrin or eserine. So, also, a system of hourly records of the pulse, respiration, and temperature should be at once begun. The records are arranged in parallel columns, and carefully studied. The temperature may be subnormal in the later stages, while a sudden big drop to well below the normal may indicate perforation of inflamed bowel. If over a period of a few hours the records show that the pulse and respiration rates are rapidly increasing, the pulse tension falling, while the general condition is steadily deteriorating, the paralytic ileus of septic peritonitis may be definitely diagnosed.

By this time the pulse is probably 130 to 140, and of very low tension, the respirations 30 to 40, and decidedly shallow, the face shows a "dirty" pallor, the lips and ears are perhaps livid, the eyes sunken, the nose pinched, while the expression is drawn, weary and anxious, and the hands cold, clammy and tremulous. With these signs of deterioration established, even though vomiting be absent, even though distension be absent, and even though actual diarrhœa instead of constipation be present, the patient will inevitably die, unless intestinal drainage be promptly instituted.

In connexion with the medicinal treatment of septic peritonitis, it cannot be too strongly emphasized that the patient is dying from absorption of a virulent toxin manufactured in the paralysed intestines. To give morphine in such a case is tantamount to a failure to recognize the essential nature of the condition being dealt with; to give morphine is practically to sign the death-warrant of the patient.

My case of fæcal vomiting, reported in *The Medical Journal of Australia*, July 31, 1915, and in the *Lancet*, October 9, 1915, suggests that caecostomy alone will adequately drain the paralysed intestines, and others of my cases point to the same conclusion. The exceptions to this rule will, I believe, be found to be rather few. The primary objective is the removal of virulent toxin from the bowels, and, if caecostomy does not soon relieve the symptoms, drainage of the intestine higher up should be employed in addition.

Bearing in mind the possible need of draining the small intestine subsequent to caecostomy, the hourly records should in all cases still be continued, and the patient still be watched with the most scupulous care for at least 24 hours, the electric light bath, saline injections, and other measures being in the meantime persevered in. If after some hours, and we cannot speak more definitely, improvement has not begun to set in, or, worse still, there is evidence of deterioration, the abdomen should be at once opened under local anæsthesia, and enterostomy carried out on the most distended loop of small intestine.

In deciding the question as to enterostomy, subsequent to caecostomy, the time element is the all-important factor. Whenever there is the faintest doubt, the sugeon should be immediately informed, so that if jejunostomy or ileostomy be deemed necessary, it may be carried out without any loss of time. If virulent toxin is being absorbed from the intestines, a little delay may mean death instead of recovery. A grave responsibility is thus cast upon house surgeons, not only to remain alertly watchful, but to realize that procrastination may write the inglorious epitaph—"Too late!"

We have drawn up the following rules for the guidance of the nurses in the Perth Hospital:—

Nursing After Abdominal Operations.

(1) Keep a two-hour chart for the first day and a half at least.

(2) If you have the faintest doubt as to the satisfactory progress of the case, take hourly records of

the pulse, respiration, and temperature, and carefully observe the general condition. Thus, the patient may look unduly distressed, the colour may not be good, there may be severe pain, exceptional weakness and prostration, and vomiting may be getting more urgent and perhaps regurgitant.

(3) If aften an hour you find the pulse and respiration rising, the pulse say to 115, 120, or more, and the respirations to 26, 28, or more, immediately inform the house surgeon.

(4) If the house surgeon is unable to see the patient at once, get his permission to inform the chief resident medical officer, or, in this officer's absence, to report to the resident medical officer, who may be available.

(5) Never neglect to ask the house surgeon for specific instructions as to: (*a*) Drip saline; (*b*) Fowler's position; (*c*) bowels. In many of these cases the bowels control the situation.

Reviews.

SURGICAL SUBJECTS.

Anything surgical emanating from the pen of Rutherford Morrison will command respect, not only from those who, in their student days, have been privileged to witness his work, but also from that larger circle who, though not so privileged, are aware of the vast amount of original work he has contributed to the solution of surgical problems during the past thirty-five years.

His "Surgical Contributions,"[1] a collection of his scattered papers on various surgical subjects from 1881 to 1916, are published by way of acceding to a request made to him by distinguished surgical colleagues. Some of the contributions illustrate the different phases in the evolution of Lister's antiseptic system, and in view of the marked difference of opinion as to the best method of combating sepsis in wounds at the front at the present time, a renewal of acquaintance with the principles and practice of antiseptics as actually taught by Lister is both interesting and instructive. But it is not in the principles of the antiseptic system alone that these contributions are instructive; they are instructive on the principles of surgery in general. They show that their author was not only a very capable surgeon, but a clear thinker and a lucid writer.

How often are present-day surgical writers lacking in clear thinking and perspicuity in writing. Take the surgical diseases of bones or disease of the pancreas. It would seem as if the inflammatory process in either of these structures had a pathology peculiar to themselves, whereas they have not. The cause of acute inflammation in either of these structures is the same as the cause of inflammation elsewhere—infective organisms. The symptoms are similar; the results are essentially the same as in inflammation elsewhere. True, we have to think of the seed and the soil. A particular soil may modify, though it does not essentially alter. What is fibrosis in soft parts is named sclerosis in bones; what is a partial destruction in one becomes caries in the other; total destruction in the former becomes necrosis in the latter, but substantially the results of inflammation are similar in all. Again, the pathology of pancreatitis has nothing special. The only change peculiar to inflammation of the pancreas is the occurrence of hæmorrhage into its substance and fat necrosis in the neighbourhood, both due to the digestive action of the ferments set free on the tissues; but still the fact remains that inflammation in the pancreas is essentially the same as inflammation in other regions in its cause, in its symptoms, in its progress and in its terminations. How far this simple teaching is departed from every day every unfortunate student knows but too well, nor has the interest of surgery profited by the needless detail. In the case of the pancreas we run danger of not seeing the wood because of the trees.

To readers of the *British Medical Journal* many of the articles of these volumes are already familiar, such as the Talma-Morrison operation for the cure of ascites due to liver cirrhosis, the transverse abdominal incision for gallstones, operations on the kidney and for appendicitis.

As a corollary to his clear thinking on general principles, he groups many diseases apparently having little affinity under a common denomination, and shows that in their salient features they are essentially the same, their pathology, symptoms, diagnosis and treatment being somewhat similar. Under such groups he would include (*a*) strictures of the urethra, common bile duct and pylorus, (*b*) sacculi of the urinary bladder, gall bladder, appendix and caecum; (*c*) so-called tension gangrene of the urinary bladder, gall bladder, appendix and caecum; (*d*) torsions of the different viscera. On the question of the direction of torsions he would account for the preponderance of left-to-right twists as depending on an inherent physiological trait, which reveals itself in the heart's beat in the development of the gastro-intestinal tract and in the contractions of the uterus during labour. As one of our most distinguished gynæcologists has quoted this explanation approvingly at a meeting of the New South Wales Branch of the British Medical Association, it would be well, we think, to suspended judgement till evidence is heard on the other side. Take, for instance, the case of torsions of the testicle. It is well known that the directions of the twists of the testicle are opposite on the two sides; that on the right is counter-clockwise, as in withdrawing a corkscrew, whereas that on the left is clockwise, as when inserting a corkscrew. Here is one case at least where the proffered explanation breaks down.

The peritoneal recess, known as "Morrison's hepato-renal pouch," and its importance for surgical drainage purposes, his "'keel operation" for the radical cure of ventral hernia, his partiality to muscle cutting as opposed to muscle splitting, the value of retrograde catherization in localizing the bladder end of the urethra in a perineal cystotomy for stricture of the urethra, his method of anastomosis of the lower pelvic colon after excision of a new growth in this region, all these have been emphasized and described years ago and years ahead of their general adoption; in fact, it is only now that some of them are gaining general acceptance.

Altogether, the contributions will supply material for thought. Many of the articles, though penned twenty or twenty-five years ago, have stood the test of time, and there has been little to add or subtract in order to bring them up to present-day teaching.

[1] Surgical Contributions from 1881 to 1916, by Rutherford Morison, M.B., F.R.C.S., Edin., F.R.C.S., Eng; in two volumes; 1916. Bristol: J. Wright & Sons, Ltd.; London: Simpkin, Marshall, Hamilton, Kent & Co., Ltd.; Toronto: The Macmillan Co. of Canada, Ltd.; Med. 8vo.; Vol. I., pp. 439, 41 plates, 83 figures, 15s net.; Vol. II., pp. 965, 18 plates, 113 figures, 30s. net. 42s. net the two volumes.

According to a statement made in the House of Representatives on March 8, 1917, the total number of officers and men who have died on active service up to the end of February is 19,567. This figure includes 833 officers, seven nurses and two chaplains. The "missing" number 3,482. The number of those wounded is given at 26,823. In view of the numbers previously announced, we assume that this list includes only those whose wounds have incapacitated them from further military service. Since 57% of those who have been in hospital on account of wounds or sickness have been unable to return to the fighting-line, it is safe to assume that not less than 50,000 men have been wounded at one time or another. The grand total of casualties, including the dead, the wounded, the missing, prisoners of war and "casualties unknown," amounts to 51,131.

It will be noted that the incidence of sickness is not given. Up to the end of January, 1917, Australia contributed 285,809 men. The actual casualties, therefore, have affected nearly 18% of our soldiers. It therefore appears that 6.8% of the total strength represents the proportion of those killed in action or died of wounds or other causes.

The Medical Journal of Australia.

SATURDAY, MARCH 17, 1917.

The Organization of the Medical Profession for War Purposes.

Time and time again the problem of the provision of medical practitioners to supply the needs of the military and civil population during this period of great trial has been broached in these columns. The changing circumstances of the war, the deliberate refusal of the Australian people to face a national emergency, and the repeated, plaintive cry from the trenches for reinforcements have compelled those members of the medical profession who recognize the imperative necessity of lending aid to the British Empire to overthrow Prussian militarism completely and for all time, to advocate increasingly rigid measures to meet the demands of the moment. Up to the present time the medical profession in the Commonwealth, as a class distinct from all others, has provided the necessary number of men to support our troops at the various fronts, to serve the military authorities within the Commonwealth, and to attend to the medical needs of the civil community. Of this fact we have every reason to be proud. But the duty of the medical profession does not stop here. In the first place, those serving abroad should have the assurance of the profession that relief will be accorded as soon as an opportunity offers. In the next place, the pecuniary and social sacrifices attached to service within the Commonwealth should be shared by the whole profession. To attain these ends, a complete organization of the medical profession is essential, and this organization should be carried out in a manner calculated to inspire the confidence and trust of its members.

The Council of the New South Wales Branch of the British Medical Association has considered with great care the whole situation, and has taken the wide view that some step must be devised to render equality of obligation possible. Under a voluntary system the willing bear the burden, while the unwilling reap the harvest. As an outcome of their deliberations a proposal has been sent to the Federal Committee of the Association in Australia, the text of which we published in last week's issue. The Council holds that the onus of carrying out duties in military hospitals and of performing the various small tasks devolving on members of the Australian Army Corps within the Commonwealth should be divided among the members of the profession as fairly as possible. No fresh legislation is required to enrol all practitioners in the Commonwealth in the Australian Army Medical Corps Reserve. The Governor-General, with the advice of his Ministers, could proclaim that medical men would be called upon to apply for commissions. Enrolment would not necessarily mean service, and the choice of practitioners for any special duty would be made after due consideration of the local conditions, including the personal obligations and social and domestic responsibilities of the individual practitioners. Statutory or semi-official powers would be given to a body of men possessing a full knowledge of these particulars, in order that they might avoid the infliction of hardships. This body would advise the military authority as to who should be chosen and who should not be required to leave his civil practice. The Council suggest the reappointment of the Medical War Committees, which were created for the specific purpose before the Referendum was taken, and which were automatically disbanded on the withdrawal of the Proclamation. The machinery set up for the organization of the profession for war purposes under the Director-General's scheme should be utilized for this purpose.

We understand that the six Branches of the British Medical Association within Australia will consider this proposal and send their representatives to the meeting of the Federal Committee informed of their views on this subject. It may be assumed that every loyal subject of the King will subscribe to the principle involved. The only detail to which exception might conceivably be taken is the introduction of compulsion to serve within the Commonwealth. To those who have scruples in this regard we would again point out that the voluntary system must inevitably impose hardships on the few and leave the shirkers and the indifferent untouched. The many

cases where special circumstances justify a man in holding back until the need for his services is more pressing than any other claim on him would be recognized under this form of organization of the medical profession. The liability of all to serve within the Commonwealth would guarantee that no shirkers could escape. Moreover, it must be remembered that if every man of military age whose name appears on the lists of registered medical practitioners were liable for service at home, the amount of work any one man would be called upon to do, with but few exceptions, would be small indeed. Service in the Reserve is a trivial service, compared to that given by the men with our troops at the front. We admit to having experienced some disappointment that the Council of the New South Wales Branch did not grasp the opportunity of asking the medical profession to make up its mind to go much farther. A short, simple Act of Parliament could be passed as soon as the Federal Houses are again in active session, imposing on all registered practitioners of military age the liability to serve, either at home or abroad. Such a scheme would fulfil the objects which the Council have in view, and would equalize the obligations of medical men. By its means the needs of the Army and of the civil community would be safeguarded.

UNQUALIFIED ASSISTANTS.

The case of Dr. William Lowe, a practitioner residing at Heidelberg, Victoria, raises a question of great importance to the medical professon. It is for the Victorian Branch to deal with the specific case of Dr. Lowe, and it would be improper were any attempt made in this Journal to sit in judgement on him. On the other hand certain rules have been laid down by the General Council of Medical Registration and Education of Great Britain and Ireland and by the British Medical Association which should govern the conduct of medical practitioners. Many years ago the General Medical Council determined that a medical practitioner who employed an unregistered assistant in his practice and permitted this assistant to attend, treat or perform operations on patients would be deemed to have been guilty of infamous conduct in a professional respect, and his name would be erased from the Medical Register. The offence was known as "covering," and practitioners were warned by the General Medical Council of the consequences of a breach of this rule. It has been pointed out that the rule does not apply so as to restrict the proper training of *bona fide* students or the legitimate employment of dressers, midwives, dispensers, surgery attendants and skilled mechanics, under the immediate personal supervision of a registered practitioner. During the course of many years the Council has dealt in a disciplinary manner with practitioners who ignored or defied ths rule, and when the charge has been proved and no extenuating circumstances has existed calling for exceptional treatment, the registration of the practitioner has been cancelled. The General Medical Council has defined the term "covering" by means of the findings in its disciplinary cases. The employment of an unqualified assistant in the course of ordinary practice is the usual form. The Council has held a practitioner guilty of covering, when he has administered an anæsthetic for an unregistered dentist, or when an unregistered person has administered an anæsthetic for the practitioner while the latter has performed a surgical operation. In cases such as these no difficulty exists in the interpretation of the term and in the definition of the offence. The General Medical Council and the medical profession generally has claimed that medical practice by unqualified persons is a dangerous practice and is inimical to the best interests of the public. It has long been the endeavour of the profession to induce legislative bodies to declare practice by unregistered practitioners illegal for this reason. The justice of this claim has been recognized inasmuch as death certificates are not usually accepted unless signed by a registered medical practitioner. In the recent enactments aiming at the reduction of venereal diseases in Western Australia, Victoria, Queensland and Tasmania the treatment of these diseases by unqualified persons is rendered a penal offence. It is therefore clear that the medical profession has made good its case, and that the community is prepared to accept the principle that practice by unregistered persons is detrimental to the public interest. An obvious corrolary is that the conduct

of a medical practitioner who aids and abets an unregistered person to treat a person is fraudulent and a danger to the public health. He should therefore be deprived of the privileges of registration.

Covering in the sense in which the term is employed by the General Medical Council is capable of wide interpretation. A practitioner who co-operates with a pharmacist and who assists him to prescribe for a patient covers the practice of the pharmacist. A practitioner who allows his hospital attendant to give injections in the treatment of disease is in the same category. Under certain circumstances a doctor who allows a nurse to administer an anæsthetic for him is guilty of this offence. A medical man who acts as a "safeguard" to an unregistered exponent of physical culture, as in the celebrated Sandow case, is held to cover the practice of the latter. We conceive that the General Medical Council would regard under certain conditions the employment of an unregistered assistant to carry out laboratory tests on which a diagnosis is based as an instance of covering.

The Medical Acts in Australia are unfortunately not uniform, and the Medical Boards have not equal powers to deal with cases of covering. It is eminently desirable that all the Medical Boards should be endowed with the power to enquire into the conduct of practitioners who cover unregistered persons, and to remove their names on the production of legal evidence of guilt. It is of little use to clamour for laws forbidding the practice of unregistered persons, unless the registered practitioner who lends his aid to an unregistered practitioner can be called to task.

RESEARCH IN PSYCHIATRY.

The academic knowledge of to-day becomes the basis for applied science of to-morrow. Without the knowledge of the processes involved no phenomenon can be understood and utilized or combated, according to whether it is beneficial or baneful. The chances of eradicating a disease arise only when its ætiology is understood and when the effects of the causative agent on all the functions of the body have been ascertained. It may appear as if this task were a hopeless one, at all events with the present state of knowledge. So little has been discovered in connexion with the physiology and physiological chemistry of cells, groups of cells, organs and systems that the most that can be claimed in regard to any one disease is the possession of a superficial general conception of its ætiology and pathology, which may serve as a working hypothesis. In certain instances the agent giving rise to the disease is known and the manifestations are recognized, but there are many important voids in the chain of events which lead from the cause to the physiological effect. Up to the present time pathologists have been content to trace diseases to their causes and to distinguish between symptoms produced by direct destruction of tissues and those produced indirectly, it may be by the action of an intermediate product of the cause, it may be by a disturbance of the normal functions of tissues through interference of the blood supply, through interference with the nerve supply, or through interference with their intrinsic chemical properties. They leave the explanation of symptoms to a future generation of physiologists, who may be in possession of an intimate insight into the chemistry of the normal cell and into that of cells whose functions are modified, inhibited or arrested by factors originating outside of them.

It has become possible to give a reply to the question "What is tuberculosis?" because the cause can be studied outside the animal body, can be handled under varying conditions, and can be traced through the tissues of an affected individual. But with the exception of general paralysis of the insane, it is difficult, if not impossible, at present to give the same clear reply in regard to mental diseases. In the Reports from the Pathological Laboratory of the Lunacy Department of New South Wales, the late Dr. J. Froude Flashman has dealt with the problem of the ætiology of insanity[1] and the need for properly directed research into the causes of disturbed nervous function. He has come to the conclusion that the reason why so little progress in the knowledge of mental diseases has been made during the past twenty years is that trained neurological pathologists lack suitable implements. He recognizes in the readiness with which neurologists applied the knowledge given to the world by Schaudinn, Bordet and Gengou, and Wassermann to the study of *tabes dorsalis* and general paralysis of the insane, is evidence of the paucity of means to approach neurological problems. Moreover he considers that it would be more profitable to science were trained neurological pathologists to take simpler problems connected with function rather than to beat the air in a vain endeavour to investigate whole diseases. In the course of his article, Dr. Flashman discusses in brief the various environmental factors which may have some ætiological significance in insanity. These include privations, excesses, poisons, infections, disordered functions and psychological causes. In view of his admissions that the bio-chemical changes of affected tissues must be understood before the significance of these factors can be appraised, it is unnecessary to follow him through his arguments concerning them. He devotes some

[1] The Question of Research in Mental Disease, by the late J. Froude Flashman, M.D., *Reports from the Pathological Laboratory of the Lunacy Department*, New South Wales, Vol. III., 1916.

space to explain the experimental evidence against the ordinary insanities being infections in the usual interpretation of the term. That no bacteria have been detected in the blood of over one hundred patients investigated by him and Dr. Oliver Latham should be recorded as a negative fact. It does not necessarily mean that some mental diseases do not arise as a result of bacterial action. In the case of general paralysis of the insane spirochætes have been found in the cerebral tissues. The possibility that brain cells may be permanently damaged by bacteria or their products, and that by the time the mental symptoms are detectable the bacteria have disappeared from the organism is difficult to disprove. We have still to learn precisely how the symptom delirium occurring in the acute fevers is produced. Dr. Flashman wisely records the results of experiments undertaken with the object of determining the variations of hormonic action of the organs of persons who have died insane. These records will stand as pieces of experimental evidence and will, doubtless, be augmented and supplemented by observations of other pathologists. Standing alone they suggest that slight variations of the pressor and depressor actions of the internal secretions accompany some of the mental disturbances. He suggests that the fundamental changes in the secretions may be of a more subtle nature. From his writings, and from every other consideration of this chapter in pathology, we arrive at the conclusion that the student who wishes to unravel the mysteries of the madhouse must be content to study the individual processes connected with normal and abnormal mentality, must be prepared to forge new instruments, and must rest satisfied if the next or a subsequent generation of pathologists will be enabled to build up a sound pathology of mental disease on the basis of his work and of that of others.

PROTEIN POISON.

Several years ago Victor Vaughan claimed that proteins could be split by the action by alkali in absolute alcohol into two fractions, the one of which was practically non-toxin, but contained the body responsible for the sensitization in the anaphylactic reaction, and the other of which was toxic, and completed the phenomenon. In his experiments he used the white of egg. For a time his findings were accepted without challenge, but it has subsequently been shown that when crystalline egg albumin is employed and his technique is followed with minute care, the two fractions do not behave in this manner. The toxophoric fraction, according to Vaughan, gives both the biuret and Millon's reactions, and may therefore be regarded as a product of protein which has not been dissociated to any great extent. It is certainly not one of the amino acids split off from the protein molecule. Victor Vaughan[1] has followed up this conception of the immunity reaction, and has applied other experimental data to his theories. He has found that if a fatal quantity of a living culture of the colon bacillus be injected intraperitoneally into a guinea-pig, illness developes after a period of from eight to twelve hours, and in this interval the animal is apparently quite well. When a fatal dose of the dead cellular substance of the same bacterium is injected into a guinea-pig, the period of incubation is reduced by one half, while when the soluble "protein poison" obtained from the same bacilli is injected into a guinea-pig the incubation period is absent altogether. His explanation of these three phenomena is as follows. In the first time is required for the bacilli to multiply until a quantity of bacterial substance representing a minimum lethal dose is produced. At the same time the body cells undergo sensitization and a ferment is developed, which has the power of splitting up the cellular substances, with the consequent liberation of the "protein poison." In the second animal the full amount of bacterial substance is provided and the shortened period before symptoms develope is occupied by the production of the ferment. In the third animal the poisonous substance is already prepared, and consequently no incubation period is required before symptoms appear. According to his theory, there is no essential difference between the poisonous fraction of various proteins, and consequently the degree of virulence of a given bacterium depends on the rate of the liberation of the "protein poison" within the body of the host. Vaughan conceives that the substance of a bacterium must be highly poisonous to an animal which is highly immune to that bacterium. But in spite of this he holds that the same immunity effects so immediate a disruption of an invading bacterium that a sufficient dose of "protein poison" is never liberated at one time, and consequently the animal cannot be infected with this bacterium. This theory is certainly an ingenious one, but the evidence of its correctness is not strong enough to lead to its general acceptance. Since it has been shown that the cleavage of protein by an alcoholic solution of sodium hydrate does not yield two chemically and biologically pure substances, a non-toxic one which is capable of sensitizing but not of poisoning, and a toxic one which will not sensitize but will kill acutely when introduced into a sensitized animal, it is difficult to assume that this curious phenomenon would be affected by a ferment within the body. The majority of those who have studied the process of anaphylaxis have come to the conclusion that the reaction product of the sensitizing dose of protein is a ferment-like body or function which is capable of splitting off amino acids from the protein molecule.

[1] *Canada Lancet*, January, 1917.

Naval and Military.

The 277th and the 278th lists of casualties, which were issued on March 8 and 9 respectively, contain together the names of 1,761 officers and men, of whom 379 have been killed or died on active service, 57 who are missing, 624 who have been wounded, and seven who are prisoners of war. It is with great regret that we learn from the former list that Captain H. O. Teague has been killed in action. No further information concerning this officer is yet to hand.

Among the list of those ill in hospital are mentioned Captain W. J. Connolly, Captain H. C. Trumble and Captain G. V. Davies.

Public Health.

THE HEALTH OF NEW SOUTH WALES.

The following notifications have been received by the Department of Public Health, New South Wales, during the fortnight ending March 3, 1917:—

	Metropolitan Combined District. Cs.	Dths.	Hunter River Combined District. Cs.	Dths.	Rest of State. Cs.	Dths.	Total. Cs.	Dths.
Enteric Fever	17	2	7	0	43	7	67	9
Scarlatina	53	0	5	0	72	0	130	0
Diphtheria	143	4	13	0	131	4	287	8
C'bro-Sp'l Menin.	2	0	0	0	6	1	8	1
Poliomyelitis	0	0	0	0	1	0	1	0
*Pul. Tuberculosis	42	15	4	0	13	0	59	15
Malaria	2	0	1	0	0	0	3	0

* Notifiable only in the Metropolitan and Hunter River Districts, and, since October 2, 1916, in the Blue Mountain Shire and Katoomba Municipality.

THE HEALTH OF VICTORIA.

The following notifications have been received by the Department of Public Health, Victoria, during the fortnight ending March 4, 1917:—

	Metropolitan. Cs.	Dths.	Rest of State. Cs.	Dths.	Total. Cs.	Dths.
Diphtheria	94	1	67	2	161	3
Scarlatina	34	1	12	0	46	1
Enteric Fever	11	2	27	3	38	5
Pulmonary Tuberculosis	39	8	23	7	62	15
C'bro-Spinal Meningitis	5	—	2	—	7	—
Poliomyelitis	1	—	2	—	3	—

INFECTIVE DISEASES IN QUEENSLAND.

The following notifications have been received by the Department of Public Health, Queensland, during the fortnight ending March 3, 1917:—

Disease.	No. of Cases.
Diphtheria	59
Pulmonary Tuberculosis	25
Scarlatina	13
Enteric Fever	48
Erysipelas	2
Ankylostomiasis	3

THE HEALTH OF SOUTH AUSTRALIA.

The following notifications have been received by the Central Board of Health, Adelaide, for the fortnight ending February 24, 1917:—

Disease.	Adelaide. Cs.	Dths.	Rest of State. Cs.	Dths.	Totals. Cs.	Dths.
Pertussis	3	5	85	6	88	11
Diphtheria	5	2	34	0	39	2
Morbilli	3	0	22	0	25	0
Pulmonary Tuberculosis	1	5	26	7	27	12
Enteric Fever	0	0	19	2	19	2
C'bro-Spinal Meningitis	0	2	3	0	3	2
Scarlatina	1	0	3	0	4	0
Puerperal Fever	0	0	1	0	1	0
Malaria	0	0	1	0	1	0
Erysipelas	1	0	0	0	1	0

INFECTIVE DISEASES IN WESTERN AUSTRALIA.

The following notifications have been received by the Department of Public Health, Western Australia, during the fortnight ending February 24, 1917:—

Disease.	Metropolitan. Cases.	Rest of State. Cases.	Totals. Cases.
Enteric Fever	4	5	9
Diphtheria	13	16	29
Scarlatina	1	0	1
Pulmonary Tuberculosis	6	1	7
Cerebro-Spinal Meningitis	1	1	2
Erysipelas	1	0	1

THE HEALTH OF TASMANIA.

The following notifications have been received by the Department of Public Health, Tasmania, during the fortnight ending March 4, 1917:—

Disease.	Hobart. Cases.	Launceston. Cases.	Country. Cases.	Whole State. Cases.
Diphtheria	5	8	6	19
Enteric Fever	9	1	11	21
Pulmonary Tuberculosis	6	2	2	10
C'bro-Spinal Meningitis	1	0	0	1
Puerperal Fever	1	0	0	1

INFECTIVE DISEASES.

A Bulletin of the Quarantine Service, dated February 2, 1917, has been issued, and contains the following information.

Variola.

There have been no further cases of small-pox in New South Wales up to February 1, 1917. The disease has not spread from the infected sailor on board s.s. *Eastern*, which was released from quarantine on January 29, 1917.

Seven cases of variola have been reported from the Straits Settlements during the first week in January. There were three cases notified in Panama City on November 23, 1916.

Plague.

During the period from December 10 to December 23, 1916, 26,536 cases of plague, with 19,922 deaths, were registered in India. There were 22 cases in Ceylon during the three weeks ending December 31, 1916, and two cases with two deaths in Egypt during the first three weeks of December, 1916. Three fatal cases have been reported in the Straits Settlements on January 30, 1917.

Cholera.

The only report dealing with cholera is one from the Straits Settlements. On January 8, 1917, one case was reported.

Typhus Fever.

The distribution of typhus fever during the period lying between December 1 and 22, 1916, is given by the United States Public Health Service as follows:—

Place.	Cases.	Deaths.
Mexico	873	—
Java	167	16
Russia	138	13
Italy	49	14
Egypt	23	7
Austria-Hungary	15	—
Germany	13	13
Turkey in Asia	5	2
Great Britain	1	1
Switzerland	1	—
Greece	—	27

Quarantine Stations.

Proclamations were published in the *Commonwealth Gazette* of February 1, 1917, appointing quarantine stations for the performance of quarantine by vessels, persons and goods at Thursday Island and Cape Pallarenda in Queensland.

Dr. Ettie Lyons, M.B. of 1908, University of Sydney, of Wilcannia, New South Wales, and Dr. Roy Coupland Winn (A.M.C., A.I.F.), M.B., Ch.M. (1915), University of Sydney, have been nominated for membership of the New South Wales Branch of the British Medical Association.

Dr. Ettie Lyons has been associated with the Sydney Medical Mission for several years. We have been informed that she is proceeding to Wilcannia, in the far West. The presence of diphtheria and other serious illness and the difficulty of obtaining medical attendance for the sick have induced Dr. Lyons to give up her city work and to apply her gifts in this sparsely-populated district.

Abstracts from Current Medical Literature.

SURGERY.

(85) Hæmostasis in Parenchymatous Organs.

Edward H. Rissley (*Surg., Gynec. and Obstet.*, January, 1917) reports the results of experimental work on the interposition of muscle, fat and fascia in stopping hæmorrhage in parenchymatous organs, such as the kidney and liver, when other forms of hæmostasis are either impossible or undesirable. In operations on the kidneys, spleen or liver, or in rupture, stab wounds, etc., of these organs, where there is uncontrollable bleeding, the need for an easily and readily obtainable, absorbable and non-foreign hæmostatic is urgent. The author believes that to satisfy these demands a substance obtained from the tissue of the patient himself is desirable. Cushing recommended in 1911 the use of muscle in annoying hæmorrhage in brain surgery. The author quotes Horsley's article of 1914, in which he explains the valuable action of muscle tissue on the ground that it possesses, above all other tissue, three requisites: (1) asepticity, (2) adhesiveness, and (3) thrombokinesis. The thrombokinetic action is stimulated in the tissue to which it is applied, not only on account of the plasma exuding from the cut surface, but also on account of the thrombokinetic by-products in the effused blood. That adhesiveness plays an important part is proved by the fact that a piece of muscle pressed firmly against wounds in a large vessel after it has become adherent will resist a pressure of from 60 to 80 mm. of mercury. Histologically the line of contact of muscle tissue against a bleeding surface shows a considerable excess of blood platelets and fibrin within 5 to 10 minutes of application. Boiled muscle has little hæmostatic power, because the thrombokenetic elements are altered or destroyed. Fascia and fat also are not as efficient as muscle, because they lack both thrombokinetic elements and adhesiveness. In moderate bleeding, however, and in a torn liver, even down to the spurters, the interposition of a piece of omentum will often check hæmorrhage in a surprisingly rapid manner. This also applies to the fat and fascia round the kidney. In the experimental work on dogs, each experiment being described in the article, the method adopted was first to arrest as much bleeding as possible by a firm gauze pack, then to remove the gauze gently and to apply quickly unwashed muscle to the area and to hold it in by firm gauze pressure until it became adherent, and anchor it with a few interrupted sutures. Fat and fascia, when used, on account of their lack of adhesiveness, required suturing into position as closely as possible with very fine silk or catgut. The conclusions from the experiment are that the ideal hæmostatic in wounds of parenchymatous organs is interposed muscle taken from the patient's body at the time of the operation. The muscle should be jaggedly cut with a knife, and not crushed, as with a scissors, nor should its hæmostatic properties be extracted by contact with salt solutions. Fat and fascia act in the same way as muscle, but to a more limited extent, and should only be used where it is undesirable to use muscle.

(86) Malignant Conditions of the Face and Mouth.

In the *Journal of the American Medical Association*, January 20, 1917, John W. Means and Jonathan Forman refer to the great latitude accorded to the term "precancerous," allowing its application to a variety of lesions, both cancerous and non-cancerous. For the sake of clearness in thinking they consider it well to keep separate those lesions which may ultimately terminate in cancer from those cases which have recently assumed definite malignancy. It is of the greatest importance that malignant disease be eradicated while it is still a local process. Carcinoma involving the face and mouth arises from one of three types of cells, namely: (1) The squamous epithelium of the skin and mucous membrane, giving rise to epithelioma; (2) the cell of the hair follicle, giving rise to the hair matrix carcinoma, often erroneously called basal cell carcinoma; and (3) the epithelium of the glands associated with the skin and mucous membranes, giving rise to the various types of glandular carcinoma. The most frequent type is the first, and the patient bearing this type of tumour gives a history of having some form of lesion preceding the development of the cancer. The smoker's burn is the most frequent initial lesion, a blister forming, which may disappear and reform. The next in order of frequency of these "precancerous" conditions occurs as the result of mild traumatism, repeated frequently over long periods, such as the irritation of a jagged tooth. Other lesions on which carcinoma may develope are fever blisters and leucoplakia. The last is very important in cancer of the tongue. These conditions may persist without visible change for some time, but usually they spread and break down, forming an ulcer, with indurated but not undermined edges, and a smooth, grayish base. This was the picture of a fully-formed cancer. In the twenty-two cases of carcinoma of the face occurring above the line of the lower lip, which formed the basis of the study, twelve were of the hair matrix variety. These tumours of the hair matrix variety usually begin as a subcutaneous nodule, which eventually break down and ulcerate. They infiltrate widely, but not deeply, and seldom produce metastasis. Free excision effects a cure in the majority of cases. In this class of case especially when the growth is situated about the nose or eye the use of caustics, though sometimes successful, will often render the growth inoperable. The tumour cells may be cuboidal, cylindrical, or spindle-shaped. They are characterized by a small amount of cytoplasm, and by the fibrils which they produce. If they are densely packed and of spindle shape they resemble a sarcoma closely. In referring to the connective tissue lesions occurring on the alveolar border, usually referred to as *epulides*, the authors call attention to the moot question as to whether they are malignant. The misunderstandings which have existed in the past concerning the exact nature of the giant cells found in neoplasms has contributed to this confusion. The separation by Mallory of true tumour giant cells from those of the foreign body type has cleared the field in regard to the giant cell epulis. The prognosis of a giant cell epulis, provided that the tumour has been carefully excised at its point of origin is good. As the majority of cancers of the face and mouth are malignant epithelial tumours metastases to the lymph nodes of the neck occur rather readily. These metastatic groups of cells may remain inactive for a long time, and then take on an increased rate of growth. Only a small proportion of the late cases of cancer give rise to metastases in distant parts. The operative technique for these conditions has reached a high state of perfection, and gives a result of from 60% to 80% of cures.

(87) Fracture and Fracture Dislocations.

John S. McArdle (*Dublin Journ. Med. Science*, January 1, 1917) draws attention in a clinical lecture to errors in diagnosis that may occur in fractures and fracture dislocations, and the bad after-results that follows these errors. In the patient demonstrated a radiogram was shown of a fracture of the radius, low down, which had been placed on a single splint for ten weeks. The result was that the power of supination and pronation were lost. There was fixation of the wrist tendons, and the hand was to all intents useless. The author holds that no fracture should be left without frequent examination, to control that the bone-line is good and that the circulation below the line of fracture is perfect. Had the limb been taken out of splints, massaged and properly replaced there would have been a good result in five weeks. Attention was next drawn to a second radiogram of a case, showing the position of the radial fragments when fracture occurs about the middle of the forearm. It had been reduced by grasping the hand firmly and forcing it ulna-wards, bringing the lower fragment into line, then flexing to a right angle at the elbow and placing the limb in a position of semi-pronation. This procedure brought the lower into line with the upper fragment. A broad posterior splint, wide enough to prevent the bandage pressing on the radial fragments, was applied, extending from the elbow to the

dorsum of the hand, and a short, narrow, interosseous splint, with scanty padding, pressed the flexor muscles between the radium and ulna, thus preventing bony union between the radius and ulna. In fracture of the metacarpal bones, nothing is so fallacious as to think that the other metacarpal bones will act as splints. In every case of complete fracture of a metacarpal bone the corresponding finger is shortened. To have a really good result in these cases a Pemberton hand splint should be applied and the finger fixed in extension over the end thereof with rubber plaster. The open operative method of dealing with cases of fracture and fracture dislocation which have been faultily treated is described.

GYNÆCOLOGY AND OBSTETRICS.

(88) Fibromyomata Uteri.

B. R. McClellan (*Americ. Journ. Obstet.*, January, 1917) draws attention (1) to the frequent concurrence of *fibromyomata uteri* and cardio-vascular changes, and (2) to the relief of the circulatory symptoms that follow operative intervention for the removal of the fibromyomata, as well as to (3) the fact that in cases terminating unfavourably the bad results were directly due to the advanced condition of the cardio-vascular complications. He proceeds to quote various authorities and statistics in support of this relationship between two distinct pathological conditions, and to give their theories of the ætiological factors. According to Jaschky, attention was first called to this subject in 1881 by Kasprczik at Hegar's clinic, who reported a death from paralysis of the heart after hysterectomy for myoma of the uterus. Rose, Sauger, and others reported cases of secondary degeneration and atrophy of the heart muscle in myoma cases. Hofmeier reported 11 deaths after myoma operations due to fatty degeneration and brown atrophy of the myocardium. Strassmann and Lehmann published that 40.8% of all their cases of fibromyoma gave either subjective or objective evidence of heart involvement. Wilson found that in 274 cases of myoma heart complications were present in 46%. Fleck found in 325 myoma cases there was heart involvement in 40.9%. Winter, in his clinic, made minute heart examinations in 266 cases. He found that 60% of the patients had "myoma hearts," 30% had heart murmurs, mostly anæmic in character, 6% had dilatation or hypertrophy, and 1% had changes in the myocardium. Regarding the improvement said to follow operation, Winter states that dilatation and myocardial degenerations due to hæmorrhage or anæmia are favourably influenced by the removal of the myoma. He insists that an ætiological relationship between myoma and heart disease has not been proven, and that the heart is influenced solely by secondary anæmia, due to the hæmorrhage, which in turn is due to the myoma. On the other hand, others point out that "myoma heart" occurs in those patients who do not suffer from menorrhagia and metrorrhagia. Schlaegle has studied the autopsy findings of 80 cases of myoma, and demonstrated heart changes in 55 cases (68.5%). He is therefore of opinion that there is a definite relationship between myoma and heart disease. The author quotes many other authorities, including Thalheim, Rostrom and Lenhartz, who offer a unique theory to explain the heart changes, *viz.*, the internal secretion of the myoma, which acts toxically on the heart muscle. Others lay stress on the importance of renal complications. The author concludes by a detailed report of his own cases. His series included 9 cases of "myoma heart" out of the 26 cases of fibromyomata studied. He is strongly of opinion that some relationship between the two diseases exists. He favours the theory that the heart symptoms are due to a chemical change, induced by the presence in the blood of toxins from muscle released from the tumour, as suggested by Thalheim and others. In support of this contention he put forward the following reasons: (1) the similarity of the "cardiac" disturbance in goitre and in myoma uteri; (2) experiments on animals have demonstrated a direct influence of the muscle extract of myoma tumours upon the heart; and (3) from the testimony of anæsthetists to the fact that the heart is more disturbed after myomectomy than after other operations of equal severity, with the exception of goitre operations.

(89) Placenta Prævia.

Hellier (*Practit.*, January, 1917) briefly considers the treatment of *placenta praevia*. He reviews first the old-established uterine segment, so as to compress the vessels in the placental site (*a*) by a natural plug, and (*b*) by a temporary artificial plug. The best natural plug is the head allowed to descend by rupturing the membranes or drawn down by the forceps, and if the head is not available, one leg brought down after bi-polar version. The best artificial plug is the balloon of Champetier de Ribes. He condemns the old plan of *accouchement forcé*, either by forcible digital and manual dilatation, or by Bossi's mechanical dilators, and he disapproves of vaginal Cæsarean section and the old method of separating the placenta and then extracting the child. He regards simple plugging the vagina as a broken reed to lean upon. He strongly urges that once the uterine segment has been plugged, the mistake be not made of proceeding to immediate extraction. He admits that the child's life is somewhat endangered by waiting, but regards the danger to the mother, through post-partum hæmorrhage, etc., of immediate extraction as far more real. He quotes several cases to illustrate the advisability of terminating the pregnancy upon the first attack of flooding from *placenta praevia*. The second method of treatment, namely, by the abdominal route or Cæsarean section, he regards as highly suitable in selected cases, and quotes several cases treated by this method.

(90) Incontinence of Urine in Women.

Gelpi (*New Orleans Med. and Surg. Journ.*, January, 1917) calls attention to the diagnosis, pathology and treatment of urinary incontinence associated with prolapse of the anterior vaginal septum. According to the author, this condition is not necessarily associated with descent of the uterus. He points out that the urethra is funnel-shaped in this condition, and that the sphincter relaxation is always accompanied by a definite sagging of the posterior urethral wall towards the vesical end especially, and therefore the only point of obstruction to the intravesical pressure is found in the anterior one-half or three-quarters of an inch of parallel urethral wall. The strong attachment of the anterior urethral wall to the pubis prevents it accompanying the prolapse of the back part of the posterior urethral wall with the subsiding vaginal septum, hence the funnel shape adopted by urethra. Treatment is divided into palliative and radical, the former consisting of fitting one of the old Skene pessaries, to relieve the prolapsing vaginal septum and back part of posterior urethral wall. The use of electricity and para-urethral injections of paraffin have been abandoned. The Gersun torsion method was followed by Pawlik's method of denuding areas on each side of urethra and suturing them together under the urethra, with the object of holding the posterior wall of urethra up parallel to the anterior wall. These, and also the Albarran advancement of the urethra operation, have been superseded. Dudley, working on the same principles, devised the "horse-shoe operation," which, although dependent for its success on anatomical distortion, has produced excellent clinical results. Kelly and Baldry consider that the essential element at fault is the relaxation of the urethro-vesical junction, and have accordingly devised a denudation operation, with the object of elevating and reinforcing this area, and report good results. The author has found that Muret's technique has produced in his hands the best results. In it special attention is directed to the correction of the most prominent point of relaxation at the urethro-vesical neck, and the anatomical restoration, as far as possible, of the supporting anterior vaginal septum. A wide oval denudation from just below the meatus to about level of internal os is made, the urethral neck is constricted by silk and linen sutures inserted in the bladder wall. Next the edges of the denuded area are sutured so as to take in the slack on either side, in front and behind. When, in addition to the causes of incontinence, there are present other conditions like retroversion, relaxed vaginal outlet, etc., the author considers it essential to extend the operative correction to these conditions also.

Medical Matters in Parliament.

VICTORIA.

(*Continued from page* 217.)

In the Legislative Assembly upon September 26, 1916, the Minister of Health moved that the amendments made in Committee in the Venereal Diseases Bill be considered and adopted. The amendments were adopted.

The Minister of Health moved that the Bill be read a third time. He said that he had intimated to the House that he would consider certain proposals made by honourable members with a view to their incorporation in the Bill. It had been suggested that the age of a child should be raised from sixteen to eighteen years. He found that, if the age of a child was raised to eighteen years, difficulties would occur. Legal decisions fixed the age of a child at sixteen years. When the child passed the sixteenth year it was no longer legally under the control of its parents or guardians. He would introduce an amendment to enable children to be detained under the Bill. In regard to the issue of certificates of cure, he proposed to control the granting of certificates by regulations. After the third reading he would move an amendment making any medical man who gave a certificate which was found to be false in any material particular liable to a penalty not exceeding £50. In clause 13 he would move an amendment making a child liable to detention if not receiving treatment. He would also move to omit the word "private" before the word "treatment" in the clause giving power to the Minister to release from detention any person who undertook to obtain and undergo suitable private treatment. Clause 16 provided that any female person could claim the right of examination by women doctors. He proposed to amend that clause by the addition of a proviso that such medical women resided within a radius of twenty miles, and were willing to act. In clause 20 an amendment would be moved, giving the Minister power to arrange for the supply of drugs, medicines and appliances to persons unable through poverty to pay for them.

Mr. Bayles asked the Minister to introduce an amendment making it compulsory for a medical man to sign his prescriptions in the manner required by the Bill. A chemist who dispensed a prescription which was not written in the required form would commit an offence, but no liability attached to the medical practitioner who gave the prescription.

The Minister pointed out that this would involve an amendment of the Medical Act.

Mr. Billson was not satisfied that the Bill made sufficient provision for the treatment of those who could not pay medical fees. He thought that steps should be taken to fix the medical fee for examination and treatment under the Bill at five shillings, which would be a reasonable charge for wage-earners.

Mr. Prendergast, Mr. Mackinnon and Mr. Snowball discussed the insertion of a provision requiring the full signature of a medical practitioner upon a prescription for the treatment of venereal disease.

Mr. Hogan thought that a person suffering from venereal disease should be prevented from handling fruit or other foodstuffs. When such a person was engaged in selling foods he should discontinue his occupation until he was completely cured. He considered that it was a grave danger to the community that persons suffering from venereal diseases should handle foods and sell them to the public.

The Minister said that he would have provision made with this object if the Health Act did not deal efficiently with the matter of the sale of foods by persons suffering from infectious disease. He pointed out that the Bill placed venereal diseases in the section of infectious diseases.

The motion for the third reading was agreed to, and the Bill was read a third time.

Mr. J. W. Billson moved that the word "sixteen" in clause 2 be struck out, with a view of inserting the word "eighteen."

The House divided on the question that the word "sixteen" proposed to be omitted stand part of the clause. Ayes 26, Noes 17. Majority against the amendment, 9.

Mr. Bayles moved to insert the following new sub-clause, to follow sub-clause (3) in clause 5.

> (4) Any medical practitioner who issues a prescription in respect of venereal diseases which is undated, and does not bear his address and his usual signature (including his surname), shall be guilty of an offence and liable to a penalty of not more than five pounds.

The Minister of Health undertook to bring in a Bill of one clause at an early opportunity to amend the Medical Act. The amendment would provide for the full signatures of medical practitioners upon all prescriptions.

Mr. Bayles then withdrew his amendment by leave.

The Minister of Health moved some amendments in clause 11, reading as follows:—

> Subject to this part of this Act, when any patient as aforesaid becomes cured of, or free from, venereal disease, or has ceased to be liable to convey infection, any medical practitioner shall, on being satisfied of the fact, give such patient a certificate in the prescribed form that such patient is cured, or is free from venereal disease, or is no longer liable to convey infection (as the case may be).

He moved that after the word "fact" the words "and subject to the regulations" be inserted.

The amendment was agreed to.

He moved that after the word "patient" the words "at his request" be inserted. The amendment was agreed to.

He moved to add the following sub-clause at the end of the clause:—

> (2) Any medical practitioner who gives to any person a certificate that such person is cured or is free from venereal disease, or is no longer liable to convey the infection of any such disease, knowing the said certificate to be false in any material particular, shall be liable to a penalty of not more than fifty pounds.

The amendment was agreed to.

The Minister of Health moved some amendments in clause 13, providing, *inter alia*:—

> (1) Whenever the medical inspector is satisfied by the certificate of a medical practitioner or by statutory declaration that any person other than a child is suffering from venereal disease, and is not under treatment by any medical practitioner, he may issue an order in writing requiring such person to place himself forthwith under the care of a medical practitioner.

He moved that the words "other than a child" be omitted. The amendment was agreed to.

He moved to omit the word "private" in sub-clause 5, which sets out that the Minister may release from detention any person prepared to undergo suitable private treatment. The amendment was agreed to.

The Minister moved an amendment to clause 16, providing that a female could insist on being examined by a female practitioner. The amendment read:—

> Provided that a woman practitioner or women practitioners (as the case may be) are available within a radius of 20 miles and are willing to act.

The amendment was agreed to.

The Minister of Health moved in clause 20 to insert the words "examination or" before the word "treatment" in the paragraph setting out that the Minister may arrange for the treatment by private medical practitioners of persons suffering from venereal disease. The amendment was agreed to.

The Minister moved to add after the word "disease" in the same paragraph the words "and for the remuneration of such practitioners under any such arrangement." After some discussion the amendment was agreed to.

The Minister moved to add the following new paragraph to clause 20:—

> (*d*) arrange for the supply of drugs, medicines, and appliances for the treatment, alleviation, and cure of venereal diseases in the cases of persons unable, through poverty or otherwise, to pay for such drugs, medicines, or appliances.

The amendment was agreed to.

The Minister of Health said that clause 21, empowering the Governor-in-Council to make regulations on various matters, contained a section as follows:—

(c) the conditions under which a certificate of cure of or of freedom from venereal disease or of having ceased to be liable to convey infection may be issued.

He moved that the words "and circumstances" be inserted after the word "conditions." The amendment was agreed to.

He moved that, after the word "issued" in the same section, the words "and the maximum fee chargeable for any such certificate" be inserted. The amendment was agreed to.

In the same clause the Minister moved to omit section (g), reading:—

(g) the remuneration of private medical practitioners for the examination and treatment of destitute persons pursuant to this part of this Act.

Mr. Snowball asked the Minister to withdraw the amendment. Many honourable members wished to regulate the fees charged by medical practitioners for the treatment of the general public. The Bill made it compulsory for the patient to consult a medical man, and steps should be taken to protect the patient against excessive charges. If the Minister would agree, he would move to omit the word "destitute."

The Minister, by leave, withdrew the amendment.

Mr. Snowball moved to omit the word "destitute," with the view of inserting the word "all."

The amendment was agreed to.

The Bill was then ordered to be transmitted to the Legislative Council.

The Venereal Diseases Bill was received from the Legislative Assembly by the Legislate Council upon October 3, 1916. On the motion of the Hon. A. Robinson (Honorary Minister), the Bill was read a first time.

On October 10, 1916, the Hon. A. Robinson moved the second reading of the Bill. In a long and able speech he pointed out the distribution and danger of venereal diseases and the provisions of the Bill.

The Hon. W. S. Manifold supported the Bill. He trusted that the attempt to compel those suffering from these diseases to obtain treatment would be successful. Provision was made whereby rich and poor could receive satisfactory treatment.

The Hon. J. P. Jones thought the Bill would be successful if it reached those who were spreading the diseases. He was of opinion that the Bill was a great improvement on previous efforts to deal with these diseases. It had been held that the control of prostitutes would regulate the spread of venereal diseases. Experience had shown that such control was insufficient to limit the distribution of venereal diseases. The Bill would need to be supplemented by education. The younger generation should be informed of the dangers that arose from certain habits of life. He trusted that parents would undertake the duty of instructing their children on these matters. Dealing with the scope of the Bill, he hoped some provision would be made for the sustenance of those undergoing treatment. Many would not be sufficiently ill to be detained in hospital, yet these persons would be a danger to the community if they followed their usual vocations.

On the motion of the Hon. J. D. Brown the debate was adjourned.

On the resumption of the debate upon November 1, 1916, the Hon. J. D. Brown spoke at great length. He traversed the findings of the Royal Commission in England and the report of the Committee appointed by the Federal Government. From these reports he arrived at the conclusion that compulsory notification was unnecessary. What he thought was of much more importance was the provision of absolutely free treatment for the cure of these diseases. He advocated free treatment for rich and poor. He quoted many authorities who were opposed to compulsory treatment. He believed that it would not be possible to treat the greater number of sufferers, as they would attempt to evade control. If the Bill were too stringent it would defeat its end of bringing every patient suffering from venereal disease under treatment.

On the motion of the Hon. A. O. Sachse the debate was adjourned.

The debate was resumed upon November 14, 1916, when the Hon. A. O. Sachse continued the discussion. He said that the speech of the Hon. J. D. Brown had shaken somewhat his faith in compulsion. What was needed was the treatment of all cases of venereal disease. He suggested that some difference be made between patients suffering from gonorrhœa and those infected with syphilis.

The Hon. W. J. Beckett supported the proposal to remove gonorrhœa from the scope of the Bill.

On the motion of the Hon. H. F. Richardson the debate was adjourned.

Upon November 28, 1916, the debate was resumed. After further discussion the second reading was carried.

The Bill was read a second time.

The Hon. H. F. Richardson moved:—

That it be an instruction to the Committee that they have power to call witnesses to the bar of the House to give evidence with respect to the Bill.

The Hon. A. Robison (Honorary Minister) opposed the motion. Much time would be spent in calling witnesses before the Committee. The opinions expressed by witnesses would be very varied. The Government wished to press on with the Bill.

Some discussion occurred, and the House divided on the motion. Ayes 4, Noes 11. Majority against the motion, 7.

The House then went into Committee upon the Bill.

Clause 1 was agreed to, and progress was reported.

(To be continued.)

Correspondence.

THE MEDICAL PROFESSION AND THE WAR.

Sir,—It was with interest that any of us in the profession who have been away on service with the A.I.F. read the letter of Colonel Reuter Roth in *The Medical Journal of Australia* of February 24.

He so truly says that medical men of under 50 years of age, and up to that age, can find much scope for work on service. If more men of the ages between 30 and 50 were willing to serve it would allow the younger men who are in base hospitals to be free to go up to the field ambulances and battalions.

I only left France last December, and all through from July to December there was a constant wastage of medical officers, and at most times the base hospitals were exceedingly below establishment, on account of this wastage at the front, as medical officers had to be "sent up" from the hospitals. And, consequently, the staffs of these hospitals were often seriously depleted. Were there medical officers forthcoming between the ages of 35 and 50 to fill up the staffs of the hospitals and make them practically permanent staffs, it would allow the younger men to be used where they would be of greater value, namely, in the field ambulances and the battalions. We read of the call for more medical officers, and it appears in the form of an appeal in a leading article in a late *Journal*, and yet there has been, as far as I can find, no official request for more medical officers. I feel sure that if this request is genuine, and each local Branch of the B.M.A. in the State were sent a request to forward the names of its members who would be willing to join the A.I.F. if called on, there would be a ready response, and the P.M.O. of each State would be in a position to state how many medical men are willing to go away on service. In New South Wales, at any rate, these local associations are so well organized that it would be, I believe, the easiest and quickest way of finding out accurately whether the members of the B.M.A. are willing or not to join up with the A.I.F.

At the same time, by this method the whole matter would be more thoroughly brought before all the members of the profession. And perhaps some scheme to assist the men who give up their practices temporarily might be arranged, so that his family and other expenses could be met during his absence on service.

Yours, etc.,
R. A. PHIPPS WAUGH,
Major, A.M.C., A.I.F.

Parramatta, March 4, 1917.

CONTRACT PRACTICE.

Sir,—The position of the general practitioner demands immediate action. A private practice league should be formed at once, and club practice abolished. Government must provide suitable medical attendance for the poor, and rogues must be compelled to pay. Government is not likely to move in this direction while we carry the burden on our own backs. A referendum circular should be sent to every member of the profession in Australia. This will give us a sound basis for further action. One question only is needed, *i.e.*, "Will you support a movement for the abolition of contract practice in Australia?" Having ascertained the numbers for and against, we shall be able to get to work without any delay. We need not fear lack of employment, as medical attendance will be had at any cost. When our absent brethren come back from the battlefields they will find their practices deteriorated, even under the most favourable conditions. The best present we can make them is to see that their house is in order when they return. There are other fish to fry besides the clubbers; but one step at a time. A period of three months would be sufficient for putting this scheme in working order. The B.M.A. could render valuable academic aid to the proposed league, and thereby strengthen its influence on the profession. There is only one cure for clubbery.

Yours, etc.,

"GRADUATE."

March 7, 1917.

THE MEDICAL PROFESSION AND FRIENDLY SOCIETIES.

Sir,—In concluding my correspondence under "Medico," I would like to draw special attention to the fact that when "action" is contemplated, which assuredly it must be before long, success or failure will result from speedy or delayed action, as the case might be. We want no prolonged and repeated conferences with Friendly Societies, with their consequent sources of irritation to both sides. It is known what we want, and what we must insist upon. Four weeks should be given within which to give Friendly Societies ample time to make their necessary arrangements to meet our demands, and due notice should be given that our Model Agreement would be put into force on the first day of the following month. Our action should be very definite and without showing weakness of any kind. A firm hand and speedy action should go hand-in-hand.

Yours, etc.,

RICHARD JONES.

Hawthorn, Victoria,
March 8, 1917.

LODGE PRACTICE.

Sir,—An odd few minutes spent in skimming the contents of the *British Medical Journal* and *The Medical Journal of Australia* has led me to figures and facts. I therefore submit the following particulars:—

Residing in a bush township, no opposition (as my *confrère* has gone on Service), I am under a bond to do his and my own work, and return him an agreed income. Our combined Lodges number about 326 members, paying 6s. 9d. a quarter, and for which the total income is £111 12s. per quarter. Deductions from this are:

	£	s.	d.
Dispensing, 326 @ 2s. 6d.	40	15	0
Surgical Dressings, Instruments, etc. ..	8	10	0
Half Cost of Motor Expenses	13	0	0
Total	£62	12	0

Deduct this sum from income, leaving £49 net per quarter. Therefore, 326 members return me 3s. 4½d. per member per quarter. But, owing to the above agreement with my *confrère* (and which I intend to carry out loyally) further reduces my share of income to £18, or 4,320 pence, which sum, divided by 326 members, will be found equivalent to 1s. 1d. per member per quarter, or 4s. 4d. per annum net.

We hear all about the city men's competition and low fees; what about the country rates? "Yes, I think you classify as an *Asinus communis*," I hear someone remark; "you have no opposition, it's your own fault." Well, although this privilege does exist, I know too much to take on a lone fight. I have been under the whip for 20 years, and know when I have a chance.

Having been a B.M.A. and M.D.A. member for many long years, I cannot say that any assistance or utility has accrued from either, rather the contrary, and, now, like "Medico," await an initiative from our supposed administrative staff. Is it still to be "academic discussion" or "action front"? Those who endure the isolation and hardship of a bush practice winter and summer, also subscribe the £3 3s. a year, and live on in hope presumably for the betterment and protection of our "caste," receive two journals weekly, full of abstruse theories and experiments that three-quarters of the members do not read, and the other quarter do not digest. The chivalrous precepts and stern ethical code enjoined look well on paper; but some of us object to be schooled as "philanthopists." A decent-sized family to educate and support is my lot; people say what an enormous practice I do, and, as a consequence, am a "fair mark" for all the mercenary collectors and tradesmen for miles.

When we read of wharf-labourers earning their £10 a week, through united effort and organization, why must our profession continually eat the leek and be "'umble"? We obtain no thanks or credit on this score; on the contrary, we are certainly despised by an "intelligent democracy." In fact, but yesterday I showed the above statement of figures to a Lodge officer; he laughed in my face and thought it a joke. How much longer must we endure this contempt?

Yours, etc.,

HERODOTUS.

March 8, 1917.

THE ANÆMIAS.

Sir,—Your questions raised in answer to "G.P.'s" letter of the last issue should be a delicate bait to all infected ever so little with the scribbler's itch. For they raise the whole question of the utility of the two great branches of the profession.

Your questions are as fertile, or should be, as "Should women vote?" "Should medical men marry?" or "Is America coming into the war?"

I wish we could induce Dr. Mercier to answer you this week.

"Is a general practitioner competent to undertake, etc.," even into ultra-microscopical fields with dark illumination?

With increasing specialism, just what is the general practitioner "competent to undertake"? Is he to act as the advance agent of Sir This or That on the one hand, and the traveller without portmanteau for the advertising drug house on the other?

Some years ago I was—for a whole twelve months—house surgeon to an English Ear and Throat Hospital. Upon leaving, the senior surgeon said to me, "Well, now, So-and-So, I am glad you have had this experience, because you know now when one should be called in."

I shall be intensely interested in reading the answers to your bait.

Yours, etc.,

"ANOTHER G.P."

March 7, 1917.

Sir,—In publishing what a correspondent has called a virulent attack on the general practitioner, you have, in my opinion, done good to the profession and helped to justify the existence of your journal as a scientific as apart from a medico-politic organ. You have simply called upon

the general practitioner to keep his work abreast of the times.

Since the establishment of a separate chair of pathology at Sydney University the teaching of pathology there has always had the object in view of preparing men to be able at least to do what one might term imperative pathology, that is, make every necessary examination of blood, etc., whether they live in the city, with its experts, or in a distant part of the country.

The examination of the blood is so essential and so easy to carry out that failure to do so will put the delinquent in one of two classes. Either he is ignorant of simple microscopic methods, or he is unwilling to do his best. "Want of examination causes more mistakes than want of knowledge" is an axiom of medicine, and nowhere is this more true than in the anæmias. A general practitioner fit to carry on his profession to-day should be able to examine a slide to the extent of differentiating the simpler anæmias and detecting the malarial and filarial parasite. He should also be able to do a simple leucocyte count. If he can do this and if he does do this when confronted with a patient complaining of "poorness of blood," then he gives his patient a fair deal.

In tropical Australia this is more essential than in the cities. In France cases were often sent to the Base Hospital with an undiagnosed fever, and it is to the credit of many a young practitioner just qualified that such conditions as relapsing and rat fever were detected, and these men were not experts. These are the general practitioners of the future, and their advent must leaven medicine, as the younger surgeons did surgery a few decades ago.

Yours, etc.,

"IM-HOTEP."

ENTERIC FEVER AND SOIL CONTAMINATION.

Sir,—I have read with much interest your leader in the issue of February 10, 1917, and Dr. Lind's letter and your comments in the issue of February 24, 1917.

With the last paragraph in your editorial in reference to the precautions suggested for the prevention of an epidemic where many men are employed I think every one will agree.

Those of us who have had much experience of typhoid in the country and in large cities before the advent of deep drainage will commend the precautions taken by the eminent civil servant referred to, and agree with Dr. Lind.

We owe much to the bacteriologist, and probably shall owe much more to his researches in the future. It must, however, be admitted that the conditions in the laboratory are not always the same as in the open.

There is, I think, a considerable analogy between the germ (or seed) theory of disease and the seed (or germ) history of plant growth. In the latter we know that when the seeds are scattered some die right away, others fall near the parent plant and some are carried by wind or birds and animals to far distant parts. In some cases some of the seeds will germinate at once, but in the majority they lie dormant where they fall, and come up the next year at the proper time. Others may be so deeply covered that they may lie dormant in the soil for years, till ploughing or other deep disturbance of the soil brings them under the normal influence of sun and rain.

We know that there is a definite typhoid season, usually in the summer time. We may get sporadic cases at odd times, as we find scattered, out of season, plants. This looks as if the germs of disease had their latent period, as the germs of plants have. Again, typhoid has often been in progress for some time before medical aid has been summoned, and the ground may have been freely sown with typhoid germs, many of which probably die, as the bacteriologists observe; others may be latent and, coming into activity the next season, may account for the annual recrudescence of the disease so often seen in country places. Again, typhoid may have been absent from a district for some time, but the deeper disturbance of the soil where the excreta has been but lightly buried may expose some latent germs, by which the water or milk supply of a district may be affected.

There is this curious aspect of typhoid on a new mining field. The earlier cases usually occur in outside claims, and not in the main camp. The water used is generally boiled as, except stimulants, the main drink is tea, which is usually only too well boiled. The question of the carrier hardly comes in under these circumstances.

Anyway, it is certain that in all doubtful cases means should be effectively taken for the destruction of any possible germs by the best means found by the bacteriologist. The directions for burying the excreta in country cases, as was ordered by the Central Board of Health, I have never felt to be sufficient. Where strong germicidal disinfectants cannot be got, as may happen in the country, fire is the best agent. A fire can generally be made in the back of the premises, and all fæces and urine can be destroyed by it.

Yours, etc.,

LEONARD W. BICKLE.

Melbourne, March 4, 1917.

POISONING FOLLOWING THE EATING OF PEARS.

Sir,—Lately I attended three in a family of eight who were suffering from symptoms of ptomaine poisoning. One aged 20 years, the second ten, and the third, a girl, six years, who was also suffering from pertussis. She died a few hours after my visiting her; the other two recovered.

I could not trace the sickness to any food they had eaten in the way of meat, fish, or any tinned things. They were a poor family, and had bread and butter, porridge, boiled in a porcelain receptacle, and their own milk, as they kept a cow. The whole family had eaten a quantity of windfall pears infected by the codlin moth, together with other children in the village, none of whom were affected.

Do you think that anyone eating fruit infected by the codlin moth, as these pears were, could be poisoned by the débris, etc., remaining after the grub has escaped from the pears, this being eaten by some children, but not others?

I may state that the pears had only been sprayed once, when the fruit had just formed, and not since. Besides, the symptoms were not those of arsenical poisoning. There was continual vomiting and purging, a temperature of 102°, tongue slightly coated, patients delirious, constantly throwing themselves on the bed, and pulseless.

Yours, etc.,

"AGNOSCO."

March 2, 1917.

[There is no evidence that the codlin moth can give rise to poisoning. Fruit affected by this moth is eaten frequently, and no symptoms have been known to follow its ingestion. We regret that "Agnosco" did not refuse to give a death certificate, so that an inquiry into the cause of death, including a post-mortem examination, would have been held. From the few details available it appears that the poisoning was not ptomaine poisoning, since there were fever, delirium and a chain of symptoms unassociated with the condition of collapse, which is characteristic of ptomaine poisoning. On the assumption that the onset of the symptoms was sudden in all three cases, and that the two older patients were in normal health within a short time of the first appearance of vomiting, the illness reminds us more of poisoning by alkaloids, such as atropine, than anything else. An infection is not excluded, and might have been conveyed by the medium of the fruit, or in some other way. The symptoms described are at times produced by the *bacillus enteriditis*, and by other members of the intestinal group of organisms. In the third place, notwithstanding "Agnosco's" opinion to the contrary, the symptoms do correspond roughly to those met with under exceptional conditions in acute copper or arsenic poisoning. In the absence of further information, we cannot do more than hazard a guess that the condition was probably due to alkaloid poisoning, acquired independently of the pears eaten.]

Books Received.

PRACTICAL BACTERIOLOGY, BLOOD WORK AND ANIMAL PARASITOLOGY, INCLUDING BACTERIOLOGICAL KEYS, ZOOLOGICAL TABLES AND EXPLANATORY CLINICAL NOTES, by E. R. Stitt, A.B., Ph.G., M.D., 1916. London: H. K. Lewis & Co., Ltd.; Fourth

Edition, Revised and Enlarged, with 4 Plates and 115 other Illustrations, containing 506 Figures; Post 8vo., pp. 497. Price, 9s. net.

MANUAL OF PSYCHIATRY, by J. Rogues De Fursac, M.D., and A. J. Rosanoff, M.D., 1916. New York: John Wiley & Sons, Inc.; Demi 8vo., pp. 522. Price, 10s. 6d. net.

CITIZEN TO SUBALTERN, by Captain A. W. Hutchin, General Staff, Australia, 1916. Sydney: Angus & Robertson, Ltd.; Pocket size, pp. 152. Price, 1s.

FIVE MONTHS AT ANZAC: A Narrative of Personal Experiences of the Officer Commanding the 4th Field Ambulance, Australian Imperial Forces, by Joseph Lievesley Beeston, C.M.G., V.D., L.R.C.S.I., Colonel, A.A.M.C., 1917. Sydney: Angus & Robertson, Ltd.; Crown 8vo., pp. 68. Price, 2s. 6d.

Medical Appointments.

In the *Queensland Government Gazette* of March 3, 1917, it is announced that Dr. Donald Francis Finlay has been appointed Government Medical Officer at Texas, in place of Dr. Gabriel Williams Stahel Farmer.

During the temporary absence on duty of Dr. Bedlington Howel Morris, Inspector-General of Hospitals, Dr. Edward Angas Johnson has been appointed Deputy Inspector-General of Hospitals.

We note that Dr. John William Springthorpe has been appointed a member of the Dental Board of Victoria.

Dr. William Moir has been appointed Public Vaccinator for the South-Eastern District, Victoria.

In the *Government Gazette of Western Australia* of March 2, 1917, the following appointments are announced: Dr. Thomas Ryan to be District Medical Officer and Public Vaccinator, Westonia, as from the 21st February, 1917. Dr. Henry O. Irwin as a Medical Referee under Section 13 of "The Workers' Compensation Act, 1912," during the absence of Dr. Connelly.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, ect., see "Advertiser," page xvii.

Brisbane Hospital, Junior Resident Medical Officers.

Department of Trade and Customs, Quarantine Service, Quarantine Officer at Brisbane.

Melbourne Hospital, Resident Medical Officers.

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
VICTORIA. (Hon. Sec., Medical Society Hall, East Melbourne.)	Brunswick Medical Institute. Bendigo Medical Institute. Prahran United F.S. Dispensary. Australian Prudential Association Proprietary, Limited. National Provident Association. Life Insurance Company of Australia, Limited. Mutual National Provident Club.
QUEENSLAND. (Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.)	Brisbane United F.S. Institute.
SOUTH AUSTRALIA. (Hon. Sec., 8 North Terrace, Adelaide.)	The F.S. Medical Assoc., Incorp., Adelaide.
WESTERN AUSTRALIA. (Hon. Sec., 330 St. George's Terrace, Perth.)	Swan District Medical Officer. All Contract Practice Appointments in Western Australia.
NEW SOUTH WALES. (Hon. Sec., 30-34 Elizabeth Street, Sydney.)	Department of Public Instruction—Appointments as Saluried Medical Officers, with duties which include the treatment of school children. Australian Natives' Association. Balmain United F.S. Dispensary. Canterbury United F.S. Dispensary. Leichhardt and Petersham Dispensary. M.U. Oddfellows' Med. Inst., Elizabeth Street, Sydney. Marrickville United F.S. Dispensary. N.S.W. Ambulance Association and Transport Brigade. North Sydney United F.S. People's Prudential Benefit Society. Phœnix Mutual Provident Society. F.S. Lodges at Casino. F.S. Lodges at Lithgow. F.S. Lodges at Orange. F.S. Lodges at Parramatta, Penrith, Auburn, and Lidcombe. Newcastle Collieries — Killingworth, Seaham Nos. 1 and 2, West Wallsend.
NEW ZEALAND: WELLINGTON DIVISION. (Hon. Sec., Wellington.)	F.S. Lodges, Wellington, N.Z.

Diary for the Month.

Mar. 20.—N.S.W. Branch, B.M.A., Executive and Finance Committee.
Mar. 21.—W. Aust. Branch, B.M.A., General.
Mar. 27.—N.S.W. Branch, B.M.A., Medical Politics Committee; Organization and Science Committee.
Mar. 28.—Vic. Branch, B.M.A., Council.
Mar. 29.—N.S.W. Branch, B.M.A., Return of Ballot Papers for Election of Council of Branch.
Mar. 29.—S. Aust. Branch, B.M.A., Branch.
Mar. 30.—N.S.W. Branch, B.M.A., Annual Meeting.
Apr. 3.—N.S.W. Branch, B.M.A., Council (Election of Officers and appointment of Standing Committees).
Apr. 4.—Vic. Branch, B.M.A., Branch.
Apr. 6.—Q. Branch, B.M.A., Branch.
Apr. 10.—N.S.W. Branch, B.M.A., Council (Quarterly).
Apr. 10.—Tas. Branch, B.M.A., Council and Branch.
Apr. 12.—Vic. Branch, B.M.A., Council.
Apr. 13.—N.S.W. Branch, B.M.A., Clinical.
Apr. 14.—S. Aust. Branch, B.M.A., Council.
Apr. 17.—N.S.W. Branch, B.M.A., Executive and Finance Committee; Ethics Committee.

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this Journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.

The Medical All communications should be addressed to "The Editor," *Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney, New South Wales.